

GRANT APPLICATION MANUAL

PIER- ENVIRONMENTAL AREA: ENVIRONMENTAL EXPLORATORY GRANT PROGRAM

July 2006



**PIER¹ ENVIRONMENTAL AREA
ENVIRONMENTAL EXPLORATORY GRANT PROGRAM SOLICITATION**

**DEADLINE FOR RECEIPT OF APPLICATIONS:
5:00 PM PACIFIC TIME, October 10, 2006**

The California Energy Commission's (Commission) PIER Environmental Area (PIER-EA) Team is accepting proposals for research projects through its Environmental Exploratory Grant Program (EEGP). This program is administered through the University of California, hereafter referred to as (EEGP Administrator). The goal of this program is to support the early development of promising new scientific concepts with the potential to impact the way we understand and/or address energy-related environmental issues. The program should enhance the current PIER-EA research portfolio by funding focused projects in areas not presently being considered. Approximately \$600,000 of PIER funds is allocated to Environmental Exploratory Grants. The maximum amount of any individual grant award is \$75,000. The EEGP is designed to tap into the broad research community to help ensure that PIER-EA is open to research opportunities in the full range of energy-related environmental issues relevant to the mission of the PIER-EA Program.

The PIER program is made up of six subject areas: Buildings End-Use Efficiency, Industrial/Agricultural/Water End-Use Energy Efficiency, Renewable Energy Technologies, Environmentally-Preferred Advanced Generation, Energy Systems Integration, and Energy-Related Environmental Research. The stated mission of the PIER Program is to conduct energy research to improve quality of life by "...providing environmentally sound, safe, reliable and affordable energy services and products..."

In practice, the mission of the PIER-EA program is to develop cost-effective approaches to evaluating and resolving environmental effects of energy production, transmission, delivery, and use in California, and to explore how new electricity applications and products can solve environmental problems. The primary objective of this program is to fund projects that will provide foundational information necessary for more-focused, larger-scale research development and demonstration (RD&D) projects that support the PIER-EA mission. The EEGP will assist Commission staff in fulfilling this mission by providing information:

- that supports the early development of promising, new scientific concepts;
- that can be used to determine the need for new PIER-EA planning efforts (roadmaps);
- that leads to an improved understanding of key processes that affect environmental quality as a result of electricity generation, transmission, distribution and use in California; and/ or
- that is necessary for more informed decision and policy making in California.

Grant awards will be made competitively on the basis of a technical and programmatic review process.

¹ The Public Interest Energy Research (PIER) Program is managed by the California Energy Commission (Commission). The purpose of the program is to provide benefits to California electric ratepayers by funding energy research, development and demonstration (RD&D) projects that are not adequately provided for by competitive and regulated energy markets. More information about the PIER Program can be found at <http://www.energy.ca.gov/pier/index.html>

The research goals of the PIER-EA Program are crosscutting. They are to:

- Improve understanding and develop solutions to reduce the land-use and habitat, aquatic resources, and air quality -related impacts of electricity generation, transmission, distribution and use;
- Improve understanding of the nature and significance of global climate change, its relationship to electricity generation, transmission, distribution and use, and develop strategies and solutions to address identified impacts; and
- Create the knowledge base for a policy framework that encourages solutions to environmental issues through electricity technology development and market innovation.

Within PIER-EA, there are five focus areas: (1) Indoor air quality; (2) Outdoor air quality; (3) Land use and habitat; (4) Aquatic resources; and (5) Global climate change. Research Plans (roadmaps) are being developed in each of these PIER-EA focus areas. For those areas that have finalized roadmaps, there are certain research restrictions that apply to the EEGP Program. There are other topic areas that, even though they may not be tied to a particular roadmap, are being funded and, therefore, are also restricted. These restrictions apply in order to prevent the same proposal from being submitted to multiple programs within PIER, to avoid institutional confusion over which PIER program the applicant is soliciting, and to avoid the duplication of research. See section titled *What projects are not eligible for funding?* for specific instructions on research restrictions.

A detailed description of the PIER-EA program and focus areas (except for indoor air quality) can be found on the Commission web site at <http://www.energy.ca.gov/pier/environmental/index.html>. Copies of PIER-EA Final Reports can be found at <http://www.energy.ca.gov/pier/environmental/reports.html> and Project Descriptions http://www.energy.ca.gov/pier/environmental/project_fact_sheets/index.html. The Commission's PIER Buildings End-Use Efficiency Team co-sponsored a national planning effort to identify research and development needs in the area of indoor environmental quality (IEQ). This plan is also being used by PIER-EA and is available to download as an Adobe Acrobat PDF file at <http://www-library.lbl.gov/docs/LBNL/513/28/PDF/LBNL-51328.pdf>. The PIER-EA team is working with the Buildings' team to address particular aspects of the plan. Just as with the roadmaps and other funded projects, certain restrictions regarding the IEQ research plan will apply to the EEGP.

Participation in the EEGP is open to individuals and the following groups: small and large businesses, non-profit organizations, academic institutions, and local, state and federal governmental organizations.

Persons interested in applying for an EEGP grant should consult the material in this Grant Application Manual (GAM). The GAM contains important details on the preparation and submission of proposals, including instructions that must be followed, forms that must be used, and research restrictions.

This manual may be revised periodically to address changes to the grant application process. Applicants must use the current version of the GAM that is posted along with the solicitation notice on the Commission's web site at www.energy.ca.gov/contracts where it is available for viewing and downloading in PDF and Microsoft Word XP and Microsoft Excel XP. A paper copy of this manual is available from the EEGP Administrator upon request.

DEADLINE FOR RECEIPT OF APPLICATIONS:

5:00 PM Pacific Time, October 10, 2006

Submit completed grant applications to appropriate address below.

Address for electronic submission (PREFERRED):

Email: Explore2006@ucop.edu

Address for hard-copy submission:

PIER-EA EEGP Administrator

California Institute for Energy and Environment

University of California, Office of the President

1333 Broadway, Suite 240

Oakland, CA 94612-1918

Contact Information:

Brad Niess

Phone: (510) 287-3326

Email: Explore2006@ucop.edu

Please note: Following submission, if you do not receive a confirmation of receipt from the EEGP Administrator that your application was received before the deadline, you must call to confirm that your application was received before the deadline. If an applicant thinks that a proposal was submitted, but no confirmation notice was sent by the EEGP Administrator, the proposal will not be accepted. Proposals sent to the California Energy Commission will not be accepted. Faxed copies will NOT be accepted.

Applicant Notification List

We recommend that all individuals or organizations that intend to submit a proposal to the current solicitation register their email address with the EEGP Administrator to ensure notification of any late changes to the application process. To register, send an email to Explore2006@ucop.edu and request your email address be added to the "Applicant Notification List". Contact information will be retained for future EEGP solicitations. If you would like to be removed from this list, please make a request to the EEGP Administrator.

Environmental Exploratory Grant Program Solicitation Notification

Individuals and organizations that desire to receive an email notification of future EEGP solicitations or all Commission funding solicitations should go to the Commission's web site at <http://www.energy.ca.gov/contracts/> and go to the page describing the various Mailing Lists. Follow the instructions for registering your email address with Research and Development Lists.

EEGP Administrator staff welcomes your comments and suggestions for improving this manual at any time. Please contact us if you have any questions or comments about these materials.

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Separate attachments for your information found at: www.energy.ca.gov/contracts

EEGP Sample Terms and Conditions Grant Agreement
 EEGP Exhibit A - Sample Work Statement

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EEGP Attachment Project Summary Instructions (2pg summary)
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EEGP Exhibit C – Sample Invoice Form

OVERVIEW OF THE GRANT APPLICATION MANUAL

This manual provides the information needed to establish applicant eligibility and to complete the application package. In addition, this manual describes key program features related to: 1) Frequently asked questions about the Environmental Exploratory Grant Program (EEGP), 2) Additional information regarding program features and requirements, 3) Grant application instructions, and the 4) Grant award agreement.

This manual may be revised periodically to address changes to the grant application process. Applicants must use the current version of the Grant Application Manual (GAM) that is posted along with the solicitation notice on the California Energy Commission's (Commission) web site at www.energy.ca.gov/contracts where it is available for viewing and downloading in PDF, Microsoft Word XP, and Microsoft Excel XP format. A paper copy of this manual is available from the Environmental Exploratory Grant Program Administrator (EEGP Administrator) upon request (see page iii for contact information).

Part 1 answers Frequently Asked Questions (FAQs) about the program; Part 2 contains additional information regarding program features and requirements; Part 3 includes the application forms and instructions for applying for grant funding; and Part 4 contains information pertinent to the Grant Agreement.

Part 1. FREQUENTLY ASKED QUESTIONS ABOUT THE ENVIRONMENTAL EXPLORATORY GRANT PROGRAM

Who can apply for grants?

Participation in the EEGP is open to the following groups:

1. **Individuals:** Must be acting independently. If employed or affiliated with an organization, applicant must have authorization from the organization to pursue project development exclusively as an individual with no rights reserved to the organization. The individual, not the organization, retains all intellectual property rights accrued from the grant project. NOTE: Applicants who are employed by a college/university or affiliated laboratory are not eligible to apply as individuals; submissions **must** be made through the applicant's home institution.
2. **Small and large businesses:** The EEGP uses the Federal definition of small as specified in Title 13, Code of Federal Regulations, Part 121 (13 CFR § 121), Small Business Size Regulations (www.sba.gov/regulations/siccodes/). Size requirement varies based on type of business with the average requirement being either prior year gross receipts of less than \$5 million or total employees not exceeding 500.
3. **Non-profit organizations:** Possess IRS tax exemption.
4. **Academic institutions:** Public or private post-secondary institutions.
5. **Local, State and federal governmental organizations:** Local, State and federal governmental agencies, federal laboratories or other federally funded research and development centers who are not otherwise prohibited from directly responding to a Government grant solicitation.

Can I submit a proposal if I received an EEGP grant in an earlier solicitation?

EEGP Awardees are allowed only one active EEGP grant at a time. In addition, a person cannot serve as a Principal Investigator on more than one EEGP grant project at a time.

How much funding is available for each grant and the program?

The maximum amount of any individual grant award is \$75,000. Approximately \$600,000 of PIER funds will be allocated to EEGP grants.

Are matching funds, royalty payments, or grant repayments required?

No. There are no matching fund requirements associated with the EEGP. However, cost sharing is encouraged. Royalty payments or grant repayments are not required.

What projects are eligible for funding?

Proposals must meet **all** of the following criteria to be eligible for consideration under the Grant Program:

1. Proposal was received by 5:00 PM Pacific Time, October 10, 2006.
2. Proposal is not marked proprietary in its entirety.
3. Proposal is submitted by an eligible applicant.
4. Application does not contain more than one proposal.

5. Proposal does not contain more than one project.
6. Proposal is **not** greater than \$75,000.
7. Proposed research clearly fits within PIER-EA and has a clear connection with electricity generation, transmission, distribution, and/or end use.
8. Proposed research does not duplicate research, nor proposes research or activities listed as not eligible, see Research Restrictions Attachment C-1 and Section: *What projects are not eligible for funding?*
9. Proposal is complete, as required in Part 3 Grant Application Instructions.
10. Resubmitted proposals adequately address deficiencies noted in prior evaluation.

The following listed types of activities are examples of the sorts of research activities eligible for funding:

1. Improved analytical methods, models
2. Small-scale field research (not technology demonstration)
3. Collection and analysis of existing and new data
4. Literature reviews
5. Surveys or interviews with experts
6. Market assessments/surveys
7. Meta-analysis studies

What projects are not eligible for funding?

The following types of research and activities are NOT eligible for EEGP funding:

1. Development of environmental emissions control technologies, including pre-production stage of chemistry analysis (note: environmental emissions controls are funded in other areas of the PIER program)
2. Design of educational curricula, the training of teachers, or other traditional educational activities
3. Environmental impact assessments - as preparation of information required by environmental permit, such as the California Environmental Quality Act or the National Environmental Protection Act
4. Environmental mitigation and data collection and analysis as required by local, State, or federal governmental permit
5. Transportation-related research
6. Nuclear energy research
7. Wave energy research
8. Technology feasibility studies, development, and/or commercialization
9. Marketing and promotion activities
10. Product commercialization or certifications
11. Duplicative research or projects listed in Research Restrictions Attachment C-1

Can I submit more than one proposal in a solicitation? Can I submit more than one project per proposal?

No. Only one proposal per Principal Investigator is allowed and only one project per proposal is allowed. If a Principal Investigator submits more than one proposal or more than one project per proposal, the EEGP Administrator will fail them in the initial screening and return the proposals to the applicant, and the proposal(s) will not be considered for this solicitation.

Is it ok for someone to be a co-PI on two different proposals? For example, Prof. A is a co-PI with student B on proposal 1, and Prof C is a co-PI with student B on proposal 2. [Student B does not have full PI status, only co-PI status.]

No, proposals are limited to one per person.

Can a person be listed as key personnel on two different proposals? Is the above rule only if they are listed as PI or co-PI?

Yes, as long as the key personnel is able to cover all of the proposed work, particularly in the case that more than one project listing the same key personnel receives funding. If a project is funded and a person listed as key personnel is not available as proposed, the project is at risk of receiving a Stop Work Order unless an acceptable replacement, approved by the EEGP Administrator, is found.

If submitting a proposal to another agency/institution, can the applicant submit the same proposal to the EEGP? Yes, but if the applicant receives EEGP funding, they are required to notify the EEGP Program Administrator if they enter into a concurrent contract that requires the same or similar research as proposed in this application and in this event further agree to limit reimbursement from the EEGP to costs that are not covered by other awards. If the applicant has previously received State or federal funds (such as SBIR awards) to develop the proposed concept, attach a short description of the work completed and provide contact information (phone and/or email address) for the project managers at the funding agencies. Please see GAM, Form B.

Can I submit a proposal that seeks to develop a new technology?

The EEGP allows for the development of new software; however, it does not allow for the development or refinement of hardware technologies. For hardware technology proposals, please check the PIER website to find other areas that would be appropriate, for example: the Energy Innovations Small Grant (EISG) Program, the Environmentally Preferred Advanced Generation (EPAG) Program, and/or the Renewables Technology Program.

Are pre-proposal abstracts accepted?

No. It is ok to email brief questions to the EEGP Administrator asking about a particular idea. The EEGP Administrator will not review anything more than a few lines concerning a proposal idea.

Does the EEGP have a specific energy focus?

Yes, in addition to other objectives, all successful proposals must address an environmental issue connected to electricity generation, transmission, distribution, and/or use.

Are the required forms considered part of the 10-page limit for Appendices to the Project Narrative?

No. Forms A – E are not counted as part of the Appendices to the Project Narrative.

When is the deadline for submitting proposals?

The deadline for submitting proposals is 5 PM Pacific Time, October 10, 2006.

Applicants are encouraged to submit their proposals early.

How do I submit a proposal?

You can submit electronic or hard proposals. Electronic submissions are preferred. See page iii for contact information. This manual and all required forms for proposal submission can be found at www.energy.ca.gov/contracts.

The GAM notes that: Proposals may be electronically (Microsoft Word preferred) submitted as two or three file attachments. What should each attachment contain?

The first attachment should contain the entire proposal including: Form A (Cover Page), Project Narrative, Appendices to Narrative, Forms B, C, and D, Key Personnel Resumes, and Form E (optional). In order to facilitate submission, this first attachment is typically submitted as a PDF file. If you have prepared the budget using the Excel template, please attach that as a separate file. The Project Summary must be submitted as a separate, stand-alone file (Microsoft Word is preferred) attachment to the email.

How do I know that my proposal was received?

The EEGP Administrator will confirm the receipt of all proposals. If you have not received a confirmation, you must call to confirm that your application was received before the deadline. If an applicant claims to have submitted a proposal, but no confirmation notice was sent by the EEGP Administrator, the proposal will NOT be accepted.

How are grant applications processed?

Grant applications received by the EEGP Administrator by the cutoff date and time will proceed to initial screening as shown in Diagram 1, which depicts the selection process.

How long does it take to receive funding?

It takes approximately four to six months after the cutoff date to complete the proposal evaluation, approval and agreement execution process. Grant agreements may be in place with Awardees within six weeks of the Commission final approval of proposal funding if no unexpected delays are encountered. Research may begin as soon as the grant agreement is fully executed.

How long do I have to complete a project?

Projects need to be appropriately scoped to not exceed 12 months to be suitable for the EEGP. The period of performance on a grant project cannot exceed 15 months; the additional 3 months is to include potential information transfer activities that would occur after the Final Report has been completed. All deliverables, including the Final Report, must be received during the stated term of the grant agreement.

Will I be allowed to extend my project?

Term extensions are not automatic. They require written justification and may adversely impact future follow-on funding decisions.

Can the Commission cancel or amend this Grant Program?

Yes, if it is in the State's best interest. It is the policy of the Commission not to solicit proposals unless there is a bona fide intention to award Agreements. The Commission reserves the right to do each of the following:

- Cancel this Grant Program
- Amend or revise this Grant Program as needed;
- Reject any or all proposals received in response to this Grant Program; or
- Make no awards.

Where can one find descriptions of PIER-EA projects on the web?

A good place to find descriptions of PIER-EA projects on the Energy Commission website is under Annual Reports:

<<http://www.energy.ca.gov/pier/documents/index.html#2005reports>>

Annual reports list brief descriptions of current and completed projects. Once a project is listed as complete, it will not appear in subsequent annual reports. Earlier annual reports will provide a listing of previously completed projects. For more detailed description, one can look at the available PIER-EA Final Reports

<<http://www.energy.ca.gov/pier/environmental/reports.html>>

Another place one can find PIER-EA project descriptions on the Energy Commission website is under PIER Energy Related Environmental Research:

<http://www.energy.ca.gov/pier/environmental/project_fact_sheets/index.html> Please note that this list of projects does not contain all PIER-EA projects. Some projects may be in place, but do not yet have a project summary for posting.

Also, the EEGP Grant Application Manual (GAM) - Exhibit C contains a list of PIER-EA funded projects. The GAM can be found on the Energy Commission website under:

<<http://www.energy.ca.gov/contracts/index.html#PIER>>

If you have an idea and are not sure if it is an acceptable topic for PIER-EA EEGP, contact the Program Administrator at: Explore2006@ucop.edu with a brief description of your idea and you will receive a response as to whether the idea is acceptable or not.

Whom do I contact for more information?

PIER-EA EEGP Administrator

California Institute for Energy and Environment

University of California, Office of the President

1333 Broadway, Suite 240

Oakland, CA 94612-1918

Phone: (510) 287-3326

Email: Explore2006@ucop.edu

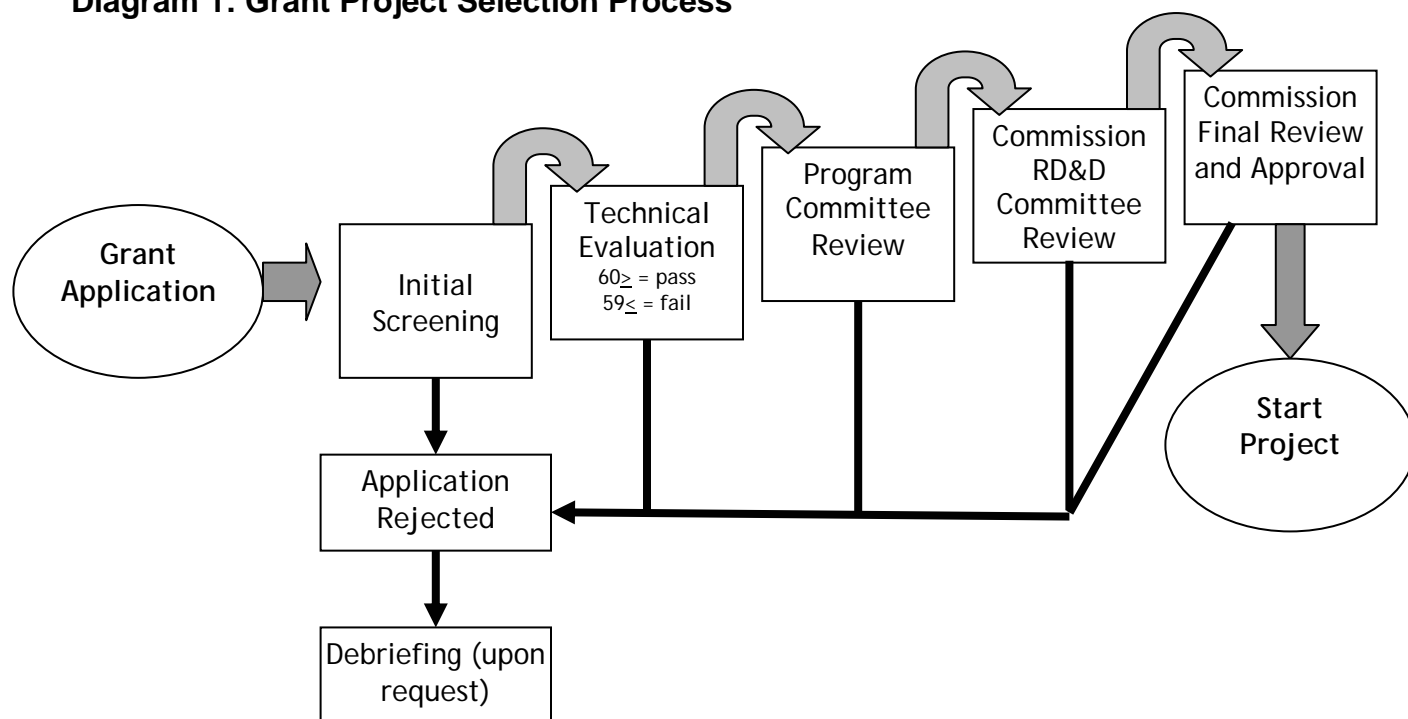
Questions addressed to the EEGP Administrator that have broad applicability to applicants will be posted on the “Frequently Asked Questions” section in the Commission’s web site at www.energy.ca.gov/contracts. Questions received up until one week before the application deadline will be answered. Please review the FAQ section periodically for updates.

Part 2. ADDITIONAL INFORMATION REGARDING PROGRAM FEATURES AND REQUIREMENTS

2.1. Grant Application Processing

Grant applications will be processed in the following phases (as outlined in Diagram 1):

Diagram 1: Grant Project Selection Process



2.1.1. Grant Application

Grant applications received on or before the specified cut-off date and time will enter the screening/evaluation process.

2.1.2. Initial Screening

The EEGP Administrator will perform an administrative pass/fail review based on the criteria listed in Table 1 (Initial Screening Criteria) below; ***all criteria must be met.***

Table 1: Initial Screening Criteria

CRITERIA	SCORE
1. Proposal was received on time	PASS/ FAIL
2. Proposal is not marked proprietary in its entirety	PASS/ FAIL
3. Proposal is submitted by an eligible applicant	PASS/ FAIL
4. Application does not contain more than one proposal	PASS/ FAIL
5. Proposal does not contain more than one project	PASS/ FAIL
6. Proposal is not greater than \$75,000	PASS/ FAIL
7. Proposed research clearly fits within the Environmental Area of PIER and has a clear connection with electricity generation, transmission, distribution, and/or end use	PASS/ FAIL
8. Proposed research does not duplicate research, nor proposes research or activities listed as not eligible, see Research Restrictions Attachment C-1 and section: <i>What projects are not eligible for funding?</i>	PASS/ FAIL
9. Proposal is complete, as required in Part 3 Grant Application Instructions	PASS/ FAIL
10. Resubmitted proposals adequately address deficiencies noted in prior evaluation	PASS/ FAIL

Applications are placed in one of the following two categories after the initial screening:

- Satisfies all screening criteria and proceeds to Technical Review.
- Fails any of the criteria and application is rejected.

2.1.3. Technical Review

Technical reviewers may be from academia, environmental organizations, industry, or government. The applicant may recommend qualified technical reviewers that are independent from the project team and who are capable of conducting an unbiased evaluation with no conflict of interest. Recommendations are advisory in nature. The EEGP Administrator is responsible for the final selection of the reviewers. The identity of the actual reviewers will be kept confidential.

Applications that pass the initial screening will be scored by a minimum of three technical reviewers with recognized expertise in the proposed subject area. Technical reviewers will score each proposal on the degree to which it meets each of the Technical Criteria summarized in Table 2, and described in detail in Appendix 1. Technical Evaluation Criteria.

<u>Raw Score</u>	<u>Proposal Response</u>
0	Not responsive to the criterion
1-2	Response is minimal
3-4	Responds only marginally to relevant considerations under the criterion
5-6	Responds satisfactorily to most relevant considerations under the criterion
7-8	Responds satisfactorily to all relevant considerations under the criterion
9	Responds completely, accurately and convincingly to all relevant considerations under the criterion
10	Response is complete, specific and superior, both quantitatively and qualitatively

Table 2: Summary of Technical Evaluation Criteria

Points 0-10

1. Degree to which the research proposal accurately and completely identifies an important California public interest environmental issue related to the generation, transmission, distribution, and use of electricity.	Weighting Factor: 1.5 Possible Points: 15
2. Degree to which the proposed project identifies Barriers, Issues, and/or Knowledge Gaps.	Weighting Factor: 1.0 Possible Points: 10
3. Degree to which the proposed research identifies clear, meaningful, and measurable objectives.	Weighting Factor: 1.5 Possible Points: 15
4. The Project Narrative (Section 3.4), Products and due dates (Section 3.4 Item 5), Budget Summary and Budget Forms (Section 3.6 and Form C) are appropriate and reasonable.	Weighting Factor: 2.5 Possible Points: 25
5. The Principal Investigator and the Project Team are well qualified to conduct the project (Form D).	Weighting Factor: 1.5 Possible Points: 15
6. Degree to which the project is likely to succeed.	Weighting Factor: 1.0 Possible Points: 10
7. Overall technical merit.	Weighting Factor: 1.0 Possible Points: 10
<u>Maximum Technical Reviewer Points:</u>	100

After receiving the technical reviews and scores, the EEGP Administrator calculates the averaged score. The scores will be used to establish the preliminary ranked-order list of proposals that will be presented to the EEGP Programmatic Committee. The EEGP Administrator determines the appropriate cut off line for proposals to be considered in the next stage of review by selecting those proposals with an averaged score that meet the minimum 60 point requirement, up to the top fifteen proposals (maximum). The EEGP

Administrator sends the rank-ordered list of proposal scores, proposals, and other relevant information to the EEGP Programmatic Committee.

2.1.4. Environmental Exploratory Grant Program Programmatic Committee

The EEGP Programmatic Committee (Programmatic Committee) is responsible for (1) producing the preliminary scored and ranked list of projects for funding consideration by the Commission, (2) reviewing the EEGP policies, procedures, and documents, and (3) making recommendations for changes to the EEGP Administrator. The Programmatic Committee will be composed of individuals experienced in policy and programmatic activities related to the PIER-EA Program. Members of the Programmatic Committee will include, at a minimum, the EEGP Administrator and Commission staff (to be selected by the PIER-EA Program Manager). They will help ensure that the projects recommended for funding are in alignment with PIER-EA and enhance the current portfolio of projects.

The Programmatic Committee will first re-evaluate the proposals to confirm that they satisfy all of the criteria listed in Table 1 (Initial Screening Criteria) and disqualify from further consideration any proposals that fail any of the screening criteria. Programmatic reviewers will score the merits of each proposal using the Programmatic Evaluation Criteria summarized in Table 3, and described in detail in Appendix 2 Programmatic Evaluation Criteria.

Proposals that pass screening will then be evaluated and scored using the Programmatic Evaluation Criteria, with a maximum of 100 points available. For each proposal, the EEGP Administrator will calculate the averaged score of the programmatic reviews to get the final total score. These scores will be used to establish the final recommended rank-ordered list of proposals which will be presented to the RD&D Committee. The Programmatic Committee will also review the EEGP policies, procedures, and documents and make recommendations for changes to the EEGP Administrator.

Table 3: Summary Programmatic Evaluation Criteria Points 0-10

1. Degree to which the research proposal accurately and completely identifies an important California public interest environmental issue related to the generation, transmission, distribution, and use of electricity.	Weighting Factor: 1.5 Possible Points: 15
2. Degree to which the proposed project identifies Barriers, Issues, and/or Knowledge Gaps.	Weighting Factor: 1.0 Possible Points: 10
3. Degree to which the proposed research identifies clear, meaningful, and measurable objectives.	Weighting Factor: 1.5 Possible Points: 15
4. The Project Narrative (Section 3.4), Products and due dates (Section 3.4 Item 5), Budget Summary and Budget Forms (Section 3.6 and Form C) are appropriate and reasonable.	Weighting Factor: 1.5 Possible Points: 15

5. The Principal Investigator and the Project Team are well qualified to conduct the project (Form D).	Weighting Factor: 1.0 Possible Points: 10
6. Degree to which the project is likely to succeed.	Weighting Factor: 1.0 Possible Points: 10
7. Overall merit.	Weighting Factor: 2.5 Possible Points: 25
<u>Maximum Programmatic Reviewer Points:</u>	100

2.1.5. Research, Development and Demonstration Committee (RD&D Committee)

The EEGP Manager discusses the proposal selection process, the final rank-ordered list, and the funding recommendations from the Programmatic Committee with the RD&D Committee. The RD&D Committee may make a funding recommendation to the full Commission based on these recommendations and on other Commission program considerations. The RD&D Committee may disapprove any or all of the recommendations, for any or all of the following reasons:

- The proposal is counter to the development and implementation of a robust public interest RD&D portfolio of projects that address California's energy needs by focusing on the RD&D plans covering the PIER subject areas.
- The proposal is counter to the objective of balancing risks, timeframes and public benefits in a manner consistent with California's energy policies.
- The proposal is counter to the objective of creating a public interest RD&D knowledge base and disseminating information that will allow citizens, businesses, government and other entities to make informed decisions concerning energy technologies and services.
- The proposal is counter to the objective that the public interest RD&D program is connected to the market.

The proposal is counter to the energy policies of the State of California including, but not limited to, the policies for PIER and for energy in California as expressed in the following legislation and reports: AB 1890 (Chapter 854, September, 1996); SB 90 (Chapter 905, October, 1997); SB 1038 (Chapter 515, September, 2002); the current Warren-Alquist Act, Strategic Plan Report on Implementing the RD&D Provisions of AB 1890 (P500-97-007, June 1997); 1997 California Biennial Energy Plan (P105-97-001); and the Five-Year Investment Plan, 2002 Through 2006 (P600-01-004); Integrated Energy Policy Report (Publication Number: CEC-100-2005-007-CMF

http://www.energy.ca.gov/2005_energy_policy/index.html); Energy Action Plan (http://www.energy.ca.gov/energy_action_plan/index.html).

Any proposal disapproved by the RD&D Committee will not affect the score of any other proposal. The RD&D Committee decides which ranked proposals merit forwarding to the full Commission for funding consideration. The RD&D Committee reserves the right to skip over disapproved proposals and to recommend funding proposals ranked lower on the list.

2.1.6. Energy Commission Business Meeting

The final rank-ordered list and the recommendations from the RD&D Committee will be considered at a regularly scheduled Business Meeting. The Commission, at the Business Meeting, reserves the right to reject any or all of these recommendations and to select any proposal from the final rank-ordered list. Any proposal rejected by the Commission will not affect the score of any other proposal.

Proposals that receive Commission approval for funding will receive an award letter and be posted on the Commission web site.

All materials submitted in response to an EEGP solicitation become the property of the State of California for disposition purposes. Except for a file copy retained for future reference, all hard copies of the grant applications will be shredded at the end of the evaluation process.

2.1.7. Schedule of Key Activities

Key Activities	Due Date/ Key Date 2006 & 2007
Release and advertise GAM (Email lists, Commission notice, on web sites)	July 10, 2006
Workshops	See notice on Commission website
Grant Applications Due	through October 10
Proposal Screening	approx 4 wks – November 9
Technical Review of Proposals	approx 6 wks – December 21
Programmatic Committee Review of Proposals	approx 5 wks – January 29, 2007
Recommendation to & approval from RD&D	approx 4 wks – March 1
Business Meeting Approval of projects	approx 8 wks – April 30
DGS Approval	approx 2 wks – May 14
Notify of Official Grant Project Approval	approx 4 wks – May 16
CIEE subaward agreement with Awardees	approx 6 wks – July 2

2.2. Unfunded Proposals

Following the Commission approval of project funding, those applicants whose proposals were not funded will receive a letter from the EEGP Administrator that describes the reason(s) for rejection.

2.3. Resubmitted Proposals

Applicants who desire to resubmit a proposal that was not funded in an earlier EEGP solicitation must satisfy the following requirements:

1. Receive a status letter from the EEGP Administrator that states that the proposal is eligible for resubmission.

2. Comply with all new requirements specified in the GAM posted with the solicitation for which the proposal is being resubmitted. Applicants cannot use the old GAM that was used when the proposal was originally submitted.
3. Provide a resubmission summary (5 pages max.) in table or outline format that identifies and responds to the concerns noted in the previous evaluation of the proposal (see sample table format below). The resubmission summary should be contained in your proposal.

SAMPLE RESUBMISSION SUMMARY

Concerns	Response	Page
1) Project team lacks experience in air quality.	Added Dr. Smith to team, see attached resume.	Form D
2) Theory of operation was not explained with sufficient technical detail to enable assessment of its technical merit.	Added expanded technical description of theory of operation.	Pg 4-5
3) The model to be tested was already evaluated by Dr. Smith.	<i>Rebuttal:</i> Dr. Smith only tested under conditions A & B whereas this project will test under conditions C& D.	N/A

A resubmission summary that fails to adequately address all significant concerns noted in the prior evaluation will be sufficient grounds to **fail initial screening**. The resubmission summary pages do not count against the allowed page count for the narrative or appendices. When possible, resubmitted proposals that had advanced to technical review are sent back to the original technical reviewers for rescoring based on the additional information.

2.4. Grant Applicant Feedback and Disputes

An applicant may obtain a debriefing regarding an unfunded proposal in the following two ways:

1. By contacting the EEGP Administrator to discuss the proposal.
2. By submitting to the EEGP Administrator a written (letter or email) list of questions or issues within 30 days of receiving the status letter on the proposal in question. The EEGP Administrator will respond to written inquiries in writing (letter or email) within 30 days after the request has been made.

2.5. Policy Regarding Follow-On Funding

The EEGP was designed to serve as a one-time funding source for projects seeking to establish foundational information necessary to justify larger funding commitments. Successful projects may be eligible for follow-on awards in the PIER program, outside of the EEGP. Performance on EEGP grants will be a consideration in any future request for funding through the PIER Program.

2.6. Modifications

To make a project acceptable, the Commission or EEGP Administrator retains the right to negotiate minor changes to a proposal's project narrative and/or budget at any time during the evaluation, approval and agreement execution process. Such modifications would be made to:

- Adjust the project scope to produce the information needed;
- Adjust project budget to comply with guidelines related to authorized expenses;
- Avoid duplication of work;
- Reduce administrative requirements; and/or
- Include tasks necessary for project success.

2.7. Intellectual Property Rights

Deliverables and reports specified for delivery become the property of the Commission. All data produced under the grant agreements are the property of the Awardee, subject to use rights by the Commission.

Patent rights for any inventions are the property of the Awardee whose employees or researchers are inventors of such invention, subject to the Commission's use of rights for Governmental Purposes. (See Sample Grant Agreement for details on Intellectual Property). The Awardee must disclose to the EEGP Administrator, on a confidential basis, all such inventions. The EEGP Administrator will ensure that all personnel who handle, screen or review proposals containing proprietary/confidential information keep this information confidential.

Part 3. GRANT APPLICATION INSTRUCTIONS

3.1. Grant Application Package Checklist

The application package must be assembled **in the order shown in the checklist below**.

Additional instructions for filling out the forms are provided with each form. Provide all information necessary to allow adequate review of the proposal, including all information requested in this GAM. Do not incorporate by reference information contained in videotapes or in other extraneous materials. The full application package submitted will be the basis for approving or denying funds for the proposed project.

Electronic submission is preferred. However, if your institution requires hardcopy submission of a proposal application, you may mail the original and 8 full single-sided copies including any supporting documents. The original should be bound only with a spring clip; the other eight copies should be bound only with a staple in the upper left corner. **No covers or other types of bindings are allowed.**

For electronic submission only: Cover email must be from an institutional representative who is authorized to contractually commit the submitting organization to performing the proposed work; this must be the same individual listed on the Grant Application Cover Page. The email must identify the Principal Investigator and the title of the proposal, and should state the following: “The attached application constitutes [Institution Name]’s official submission of a proposal in response to RFP No. CIEE-EXP-2006.” The email must give the title of the authorized institutional representative (e.g., Contracts and Grants Officer), and provide contact information, including address, phone, and fax. If this is a multi-institution submission, the email must also state that the lead (submitting) institution has received concurrence on the proposed work from the authorized institutional representatives of all participating institutions. **Please note: Proposals may be electronically (Microsoft Word preferred) submitted as two or three file attachments:**

- **The entire proposal including: Form A (Cover Page), Project Narrative, Appendices to Narrative, Forms B, C, and D, Key Personnel Resumes, and Form E (optional); Microsoft Word is preferred. If you have prepared the budget using the Excel template, please attach that as a separate file.**
- **The Project Summary must be submitted as a separate, stand-alone file (Microsoft Word is preferred) attachment to the email.**

Following submission, if you do not receive a confirmation of receipt from the EEGP Administrator that your application was received before the deadline, you must call to confirm that your application was received before the deadline. If an applicant claims to have submitted a proposal, but no confirmation notice was sent by the EEGP Administrator, the proposal will not be accepted. Proposals sent to the California Energy Commission will not be accepted. Fax copies will NOT be accepted.

APPLICATION CHECKLIST

- ☐ Form A: Grant Application Cover Page (*signed and dated, if submitted in hardcopy*)
- ☐ Resubmission summary (required for those resubmitting; *5 pages maximum, single-spaced*)
- ☐ Project Summary (*two page maximum, single-spaced; insert page break after project summary - if submitted electronically, must be separate file.*)
- ☐ Project Narrative (*ten page maximum, single-spaced*)
- ☐ Appendices to Narrative (*optional - ten page maximum, single-spaced.*)
- ☐ Form B: Certifications
- ☐ Form C: Proposed Budget Summary (*attach short budget narrative if required*)
- ☐ Form D: Project Personnel and Team Qualifications (one page maximum)
- ☐ Key Personnel Résumés (Curriculum Vitae) (*A maximum of two pages per person. Required for Principal Investigator, Project Manager, and other technical personnel critical to the project's success.*)
- ☐ Form E (*electronic submission only*): Recommended Reviewers

If submitting hardcopy, the following optional items should be loose or clipped to the original application package and not bound with the proposal copies:

- ☐ Cover Letter (*optional; one copy*)
- ☐ Form E: Recommended Reviewers (*optional; one copy*)

Faxed copies will not be accepted.

3.2 Formatting Requirements for All Text Sections

All electronically submitted documents should be in Microsoft Word. Page margins no less than 1", font size no smaller than 12 points; either single- or double-spaced is acceptable. Page numbers on the upper right-hand corner of each text page. Single-sided.

3.3. Project Summary

Provide a separate, two-page, non-proprietary summary description of the grant project. Title the page with "Project Summary" followed by the project title and name of the Principal Investigator and submitting institution. The project summary should summarize the key items requested in the recommended narrative format specified in Part 3.4. The description should be written at a level that could be understood by the general public with sufficient information to stand on its own. All projects selected for funding will have a project summary posted on the Commission web site at the onset of the project, as well as a final project summary posted at the end of the project. You must make a notation on the page if the project summary contains proprietary information. If a

proposal containing proprietary information is selected for funding, you will be asked to provide a non-proprietary version of the project summary for web publication.

3.4. Project Narrative

Provide a project narrative that is no more than 10 pages in length (not counting reference, acronyms list, or Attachment Forms A-E) that describes the project plan in detail. Key supporting documents referenced in the narrative such as photos, charts, drawings, blueprints, graphics, letters of support and excerpts from key articles may be included as appendices to the project narrative. Appendices are restricted to a maximum of 10 pages. Forms A – E are not counted as part of the Appendices to the project narrative. The project narrative must address the content items identified in the following recommended outline; however, the sequence in which the information is presented may be determined by the applicant. Project narratives that cite past research, trade publication articles, etc. must include a reference list. All acronyms should be spelled out in full when first cited.

Project Narrative

1) Project Goal

Accurately and completely identify:

- the importance of your research as it relates to an important California public interest environmental issue related to the generation, transmission, distribution and use of electricity;
- the environmental problem that is being addressed and clearly demonstrate the electricity connection;
- the energy-related environmental public benefits that could be derived by further research built on the findings from the proposed project.

2) Project Objective(s)

Describe clear and measurable objectives that demonstrate how the project will:

- Support the early development of promising, new scientific concepts;
- Lay the foundation for larger-scale research;
- Be useful in determining the need for new PIER-EA planning efforts (roadmaps);
- Improve understanding of key processes that affect environmental quality in California as a result of electricity generation, transmission, distribution, and/or use; and /or
- Provide information in key areas necessary for more informed decision and policy making.

3) Impact on **Environmental** Problem and/ or **Energy** Problem / Benefit to California rate payers and electric market (s)

- Quantify the potential impact of the project on the environmental problem being addressed.
- If unable to quantify, describe in qualitative terms the types of benefits for California that the project will produce for addressing the environmental problem targeted by this project.
- Where appropriate, quantify the potential impact to the electric consumer in terms of savings due to reduced cost per kWh, reduced kWh consumption, increased reliability, etc.
- Where appropriate, quantify the potential benefit in terms of energy and cost savings to the state of California as a whole.

4) Scientific and/or Technical Issues, Barriers, Knowledge Gaps, and State-of-the-Science

- Identify the scientific and/or technical obstacles.
- Summarize the relevant results of a current literature/Internet search. Point out where your work will extend the existing knowledge base.
- Compare existing processes, services, and/or products that perform the same or similar functions as the proposed concept. Clearly show the relevant differences (e.g., cost, reliability, efficiency, functions, etc.). We recommend that comparison data be placed in table format when practical.

5) Primary Tasks and Deliverables

- Provide a description of the work that will be conducted to accomplish the primary tasks.
- Provide a description of key deliverables (e.g., quarterly reports, draft and final reports, draft and final two-page project summary).
- Indicate when deliverables will be submitted.

Applicants should take into consideration the evaluation criteria listed in Appendices 1. Technical Evaluation Criteria and 2. Programmatic Evaluation Criteria when writing the narrative.

3.5. Proprietary Information

If the proposal contains proprietary information, as indicated on Form A, Item H, then the applicant must clearly mark those sections in the application. For electronic submissions, the footer of each proprietary page or section must contain the words “Contains proprietary information,” and the appropriate text should be highlighted. For hardcopy submissions, this could be in the form of a classification stamp at the top and bottom of classified pages or boxes placed around specific paragraphs or annotations in the margin that clearly identify those sections that are proprietary. Applicants are encouraged to limit the proprietary information to only that which is necessary to adequately assess the technical merits of the proposed concept. Classifying an entire proposal as proprietary is not acceptable.

The EEGP Administrator will ensure that all personnel who handle, screen or review proposals containing proprietary/confidential information keep this information confidential.

3.6. Budget Narrative

Attach a budget narrative to Form C (Proposed Budget) to explain any expenses listed in Items D, E, F, G, and I (subcontracts/consultants, equipment and single purchases over \$5,000, travel, miscellaneous expenses, and indirect costs). See instructions for Form C.

Part 4. GRANT AWARD AGREEMENT

4.1. Grant Agreement

Once a proposal is approved for funding by the Commission, the EEGP Administrator will send an award notification letter to the applicant containing a list of any outstanding issues that need to be resolved prior to executing the agreement. The agreement will be mailed under separate cover once all outstanding issues have been resolved. The agreement must be signed by authorized representatives of both parties before work may begin or expenses reimbursed.

The EEGP Administrator intends to base agreements on the Sample Grant Agreement and Exhibits A and B. All applicants should review the standard terms and conditions contained in the Sample Grant Agreement prior to submitting a proposal, and should be prepared to identify those issues that need to be resolved in the event of an award. Failure to come to an agreement on the terms, conditions and requirements of the grant agreement may be grounds to cancel the award.

4.2. Grant Performance

Once a grant is approved for funding, the Awardee's personnel and any subawardees performing work under the award shall be responsible for exercising the degree of skill and care required by customarily accepted good professional practices and procedures used in scientific and engineering research fields. The EEGP Administrator will approve the invoices based on grant performance and receipt of deliverables.

4.2.1. Reimbursement of Invoices

EEGP funds are distributed for reimbursement of actual project expenses in arrears. Invoices for reimbursement should be submitted on a monthly or quarterly basis to the EEGP Administrator for periods not less than one month. Reimbursement invoices submitted to the EEGP Administrator will be paid within 30-60 days of receipt, unless contested. The EEGP Administrator retains the right to withhold payment for reasons including but not limited to the following: (a) progress reports are not current; (b) the progress reports contain insufficient detail to assess Awardee's progress; (c) there is evidence of poor performance, or (d) billing is submitted that does not conform with the approved budget.

The last payment will not be paid to the Awardee until the EEGP Administrator has reviewed the final deliverables and judged them acceptable.

4.2.2. Deliverables

Awardee must submit all deliverables to the EEGP Administrator. The minimum required deliverables include:

- (a) Progress Reports: A progress report is required following the end of every standard calendar quarter; if a project begins in the middle of a calendar quarter, the progress report will cover whatever work has been done during the quarter. Progress reports must be delivered within 10 business days of the end of each standard calendar quarter.
- (b) Final Report: A draft report is to be submitted for review and comments (includes abstract, executive summary, and main report). The EEGP Administrator will review the draft report and provide written comments and recommendations. The Awardee is responsible for incorporating the recommended changes in the Final Report. The Final Report will likely be posted on the Commission website.
- (c) Final Project Summary: A draft and final non-proprietary brief summary description of the grant project is to be submitted for review and comments after the Final report has been approved. The project summary should summarize the final results of the key items and follow the format provided by the EEGP Administrator.

4.2.3. Tax and Legal Issues

If in doubt, Awardees should consult with legal and tax advisors (at the Awardee's expense) to fully understand the legal and tax obligations incurred when entering into a grant contract.

California Energy Commission
PIER-EA Environmental Exploratory Grant Program
GRANT APPLICATION COVER PAGE

FORM A

A Project Title: _____

B. Project Focus Area: *(Indicate the one that most applies) [for electronic submission: select and press "n" to check box]*

- | | |
|--|---|
| <input type="checkbox"/> Indoor Air Quality | <input type="checkbox"/> Land Use and Habitat |
| <input type="checkbox"/> Outdoor Air Quality | <input type="checkbox"/> Global Climate Change |
| <input type="checkbox"/> Aquatic Resources | <input type="checkbox"/> Other (Specify: _____) |

C. Applicant Category: *[For electronic submission: select and press "n" to check box]*

- | | |
|--|--|
| <input type="checkbox"/> Individual | <input type="checkbox"/> Academic Institution |
| <input type="checkbox"/> Small Business | <input type="checkbox"/> Non-Profit |
| <input type="checkbox"/> Large Business | <input type="checkbox"/> State Agency |
| <input type="checkbox"/> National Laboratory | <input type="checkbox"/> Federal Agency |
| | <input type="checkbox"/> Other (Please specify: _____) |

D. Grant Funding Requested: \$ _____ *(maximum allowed \$75K)*

E. Proposed Project Duration: _____ *(maximum duration 12 months)*

F. Principal Investigator

Name: _____	Address: _____
Phone: _____ Fax: _____	
Email: _____	
Organization: _____	
Position/Title: _____	

G. Authorized Institutional Representative: *(serves as point of contact for contractual issues)*

Name: _____	Address: _____
Phone: _____ Fax: _____	
Email: _____	
Organization: _____	
Position/Title: _____	Tax Payer ID#: _____
Signature: _____	Date: _____

H. Proprietary/Confidential Information:

- ☐ NO – Proposal does not contain proprietary information, unrestricted distribution authorized.
- ☐ YES - Proposal contains proprietary information; restrict distribution and disclosure. *(If proposal is marked proprietary in entirety, it will be rejected. Clearly mark and label those sections that are proprietary on all copies)*

FORM A INSTRUCTIONS

Grant Application Cover Page

Item A: Project Title

Item B: Project Focus Area

Check one box that corresponds to the PIER-EA Program area that is most representative of the proposed work.

Item C: Applicant Category

Check one box that represents the category you are applying for a grant under. The applicant categories are defined in Part 1 of this manual. The category marked in Item C must match the information certified on Form B.

Item D: Grant Funds Requested

Specify the amount of grant funds needed to complete the project, not to exceed \$75K. All project costs must be covered by this amount, unless the applicant or other sources are contributing funds to this project.

Item E: Proposed Project Duration

Specify how many months you need to complete the project. The project's duration cannot exceed 12 months. Include the time it takes to complete the final report after all data collection and analysis functions have been performed.

Item F: Principal Investigator

Item G: Authorized Institutional Representative

This individual must be authorized to commit the organization to perform the proposed work. If the application is submitted via hardcopy, this person must sign the form; if it is submitted electronically, the cover email must be from the authorized institutional representative (see instructions in Section 3.1 Grant Application Package Checklist for email contents and instructions). Include Taxpayer ID number.

Item H: Proprietary/Confidential Information

Indicate if the proposal contains any proprietary information that requires protection. Clearly mark and label those sections that are proprietary on all copies. **If a proposal is marked proprietary in its entirety, it will be rejected.**

California Energy Commission
PIER-EA Environmental Exploratory Grant Program
CERTIFICATIONS

FORM B

A. APPLICANT ELIGIBILITY CERTIFICATION

- ☐ **Individual** Must be acting independently. If employed or affiliated with an organization, applicant has authorization from the organization to pursue grant research exclusively as an individual with no rights reserved to the organization. The individual, not the organization, retains all intellectual property rights accrued from the grant project (*if employed or affiliated with an organization or business, specify in the space below any financial interest the organization or business has in the proposed project*). NOTE: Applicants who are employed by a college/university or affiliated laboratory are not eligible to apply as individuals; submissions **must** be made through the applicant's home institution.
- ☐ **Small Business** PIER uses the Federal definition of small as specified in Title 13, Code of Federal Regulations, Part 121 (13 CFR § 121), Small Business Size Regulations (www.sba.gov/regulations/siccodes/). Size requirement varies based on type of business with the average requirement being either prior year gross receipts of \$5 million or total employees cannot exceed 500 (*in the space provided below, specify your SIC Code and either the number of employees or gross revenues for prior year that qualify your organization as a small business*).
- ☐ **Large Business**
- ☐ **Non-Profit Organization** Possess IRS tax exemption.
- ☐ **Academic Institution** Public or private post-secondary institutions.
- ☐ **Local, State and federal governmental organizations** Local, State and federal governmental agencies, federal laboratories or other Federally Funded Research and Development Centers

Item (A) Information:

B. MULTIPLE AWARDS FOR THE SAME OR SIMILAR RESEARCH

- ☐ Checking this box certifies that the grant applicant acknowledges that in the event they receive an EEGP grant they agree to notify the EEGP Administrator if they enter into a concurrent contract that requires the same or similar research as proposed in this application and in this event further agrees to limit reimbursement from the EEGP to costs that are not covered by other awards. If the applicant has previously received State or federal funds (such as SBIR awards) to develop the proposed concept, **attach a short description of the work completed and provide contact information (phone and/or email address) for the project managers at the funding agencies.**

C. CONCEPT ORIGINALITY

- ☐ Checking this box certifies that the grant applicant has already performed a thorough search of the existing published literature and has determined that the proposed concept is original.

FORM B INSTRUCTIONS

Certifications

Item A: Applicant Eligibility Certification

You must check one of the six boxes to indicate the applicant eligibility criteria under which you are applying. Even if you qualify under more than one criteria (i.e., sole proprietor vs. individual), indicate the **one** that best fits your situation. Different categories have different restrictions (i.e., ability to invoice indirect expenses and ownership of intellectual property) to which the applicant will be held. Provide the additional information requested (SIC codes, number employees, gross revenues etc.) in the space provided. Fraudulent misrepresentation of eligibility is grounds for immediate termination of award.

Item B: Multiple Awards for Same or Similar Research

This certification prohibits applicants from seeking reimbursement from more than one funding source for the same work and must be certified in order to qualify. Applicants must disclose if they have previously received State or Federal funding for work related to the EEGP proposal. Prior performance will be an evaluation consideration.

Item C: Certification of Concept Originality

This certification is to ensure the grant applicant has performed a reasonable search of the published literature and patents to determine that the proposed concept and research is original.

California Energy Commission
PIER-EA Environmental Exploratory Grant Program
PROPOSED BUDGET SUMMARY

FORM C

Project Title: _____
 Performing Institution: _____
 Principal Investigator: _____
 Period of Performance: _____

	Effort WM or FTE	Rate	Est Cost	Total Cost
A. DIRECT LABOR				
PI: _____	0.00	0	0	
	0.00	0	0	
TOTAL Labor	0.00			0
B. FRINGE BENEFITS	Rate	X Base	Est Cost	
	0.0%	0	0	
TOTAL Fringe Benefits				0
C. TOTAL SALARIES AND FRINGE (A+B)				0
D. SUBCONTRACTS and CONSULTANTS (Explanation attached)				0
E. EQUIPMENT and SINGLE PURCHASES over \$5,000 (Explanation attached)				0
F. TRAVEL (Explanation attached)				0
G. MISCELLANEOUS EXPENSES (Explanation attached)				
G.1 _____			0	
G.2 _____			0	
TOTAL Miscellaneous Expenses				0
H. TOTAL DIRECT COSTS (C thru G)				0
I. INDIRECT COSTS (Explanation attached)	Rate	X Base	Est Cost	
	0.0%	0	0	
TOTAL Indirect Costs				0
J. TOTAL COSTS (H+I)				0

FORM C INSTRUCTIONS

Proposed Budget and Narrative

General Information:

This budget form is available as an Excel file on the Commission's web site at www.energy.ca.gov/contracts with the math formulas inserted. Attach a budget narrative to this form if budget entries are made in Items D, E, F, G, or I.

The following **costs** are generally **not allowed** in EEGP projects:

- Costs incurred by applicants in preparing proposals (including travel and personal expenses).
- Project debts or costs incurred before Commission approval and the effective date of the grant agreement.
- Costs for lobbying or attempting to influence any public official.
- Costs associated with protecting intellectual property.
- Costs to offset obligations of individuals or work not associated with the approved project.
- Procurement of general-purpose equipment (e.g. general-purpose computers, software, fax machines, copiers, office furniture and tools) is generally not allowed. If such equipment *is* essential to the project, applicant must show that purchase is more cost-effective than leasing or renting the equipment.
- Costs of news releases announcing the results of an EEGP project.
- Relocation costs of employees or staff members.
- Financial aid, scholarships, or fellowships, except when paid under established campus policy as part of the compensation for research performed in the EEGP project during the term of the contract.

Item A. Direct Labor

Labor expenses incurred by the Awardee's personnel and team members during the term performance period of the grant agreement are allowable to the extent that the compensation is reasonable for each individual's skill level and experience and conforms to consistently-applied compensation policies of the individual's organization.

Provide name and title of all senior research personnel. For as-yet unidentified persons, state the personnel category (e.g., technician, graduate student, administrative assistant, machine shop).

Show effort level (e.g., FTEs, work-months (WM), or hours), rate, and cost for each researcher or personnel category. If both academic year and summer rates are used, show separately and identify as such (e.g., "Student, summer" and "Student, acad yr."). For pooled effort recharges, average pay rates are acceptable provided they are noted in the Budget Explanation page.

Item B. Fringe Benefits

Fringe benefits are allowable as a direct cost (if not included as an indirect cost) in proportion to the salary charged to the grant and provided the expense is based on formally established and consistently applied compensation policies of the individual's organization. If a student receives compensation for hours worked and tuition fees, show the tuition as a separate line in Item H. Applicants who apply as an "*Individual*" should not charge Fringe Benefits, and instead should show a fully loaded hourly rate.

Show fringe rate and base to which rate applies. If different rates apply for different labor categories or time periods (e.g., career vs. student, summer vs. academic year), show separately and discuss on Explanation page.

Item D. Subcontracts and Consultants

No more than 40% of an award may be outsourced, and all subcontractors must comply with the applicable clauses in the grant agreement. If a subcontractor has been identified who is critical to the success of the project, the application must include a letter from the subcontractor confirming that they concur with the statement of work and intend to participate in the project. Payments to consultants are allowed provided the costs are reasonable and commensurate with the services provided and are included and itemized in the approved budget for the grant. Contracts shall not be made with University of California employees without prior written approval of the EEGP Administrator.

- Subcontracts: On Explanation page, give name of each subcontractor, a brief description of work, and total cost. Include curricula vitae for the subcontractor's key personnel. For any subcontract over \$10,000, attach a complete budget following the same format outlined here.

- Consultants: On Explanation page, state the name of each consultant (or function, if an individual has not yet been identified), effort level (hours or days), and rate charged. Give brief description of activities/tasks (e.g., “responsible for integrating time-of-use curves into calculation tool”). Include Résumés (Curriculum Vitae) for any consultant who has been identified.

Item E. Equipment and Single Purchases over \$5,000

Major equipment is defined as non-expendable, tangible property which has an acquisition cost of \$5,000 or more per unit and a useful life of two years or more. Major equipment purchases and items costing in excess of \$5,000 will be considered allowable as direct costs provided that (1) the item is necessary for completing the primary objectives of the grant research, and (2) renting or leasing the item at lower cost is not an option.

All major equipment and single purchases over \$5,000 must be itemized in the budget narrative. All equipment with a unit cost of \$5,000 or more will be purchased by the Awardee on behalf of the EEGP Administrator and will be subject to the following terms and conditions:

- Title to all non-expendable equipment purchased with EEGP funds shall vest with the EEGP Administrator.
- The Awardee shall assume all responsibility for maintenance, repair, destruction and damage to equipment while in the possession of or subject to the control of the Awardee (costs for maintenance and insurance may be borne by the grant).
- At the end of the original project, the Awardee shall contact the EEGP Administrator for equipment disposition instructions. This shall occur concurrent with the filing of the final report and payment of retention will not be made until equipment disposition is finalized. If no disposition instructions are provided within 120 days after end of the project period, the Awardee shall have no further obligation to the EEGP Administrator regarding the equipment

Item F. Travel

Travel costs are allowable if they are required to conduct the research and are deemed to be reasonable for a small grant effort. For travel to be reimbursed, it must occur within the performance period of the grant agreement.

Reimbursement of travel expenses will be in accordance with the requirements in this section and the invoicing guidelines contained in Section 4.2.1.

For each anticipated trip, give *specific* information regarding destination, purpose of the trip, a brief justification explaining the benefits to the project associated with the trip, estimated air fare/transportation costs, lodging/per diem, registration fees, and other related costs.

Conference travel: Conference travel is allowable if it occurs towards the end of the project for the purpose of presenting a paper on the results of the research and if the EEGP administrator gives prior approval. No more than one conference will be covered. International travel to conferences will not be reimbursed. Conference travel should not make up more than 3% of the total budget. After attending a conference, the Awardee must prepare a brief (1-2 page) memo summarizing the conference and participation and submit it to the EEGP Administrator.

Modifications to the travel budget may be required in order for a grant agreement to be finalized. The EEGP Administrator and Awardee are responsible for coming to agreement. If agreement cannot be made, the applicant risks cancellation of the award.

Modifications to the travel budget during the course of the grant must be approved in advance by the EEGP Administrator.

Item G. Miscellaneous Expenses

Include office supplies, postage, telephone, miscellaneous operating costs, and low-value materials that are associated with the work. Separately list graduate student tuition remission, workshops, and departmental recharges and burdens. Details must be provided in the budget narrative; failure to include an explanation may result in disqualification of the application. Other items to include:

- **Equipment Rental or Lease:** The cost of renting or leasing equipment is allowable provided the charges are reasonable. General-purpose equipment (i.e., computers, printers, furniture, test equipment, tools, software) essential to the project may be rented but not purchased unless renting is more expensive or not practical. In those instances where a case can be made for purchasing general-purpose equipment, provide the rationale in the budget narrative. Disposition of general purpose equipment at the end of the project will be determined by the EEGP Administrator.
- **Facility Lease/Modification:** The cost of leasing or renting commercial workspace is acceptable; however, individuals cannot charge rent for any portion of their private residence, and a business that charges an indirect rate cannot charge a lease expense for space or equipment that they already own. EEGP funds cannot be used to fund construction or facility improvements. However, rearrangement and alteration costs to adapt space or utilities within a completed structure to accomplish the objective of the grant-supported activity, which do not constitute construction, and aggregate to less than \$10,000, may be allowable provided that the requirement is clearly defined in the budget narrative.

Item I. Indirect Costs

Not applicable for Individuals, who should include appropriate overhead costs in

their fully-loaded labor rate. Small businesses, non-profits, and academic institutions that choose to recover indirect costs may use an established rate based on the following priority, and must indicate in the Budget Narrative which rationale they are using:

1. The rate used when doing similar research for the State of California or other state government;
2. The rate used when doing similar research for the Federal Government; or
3. The rate used and consistently applied to similar research contracts performed in the civilian sector.

If no indirect rate has been established, then a maximum indirect rate of 20% will be allowed on this grant. Excessive indirect rates that are deemed to adversely impact the quantity or quality of the research will be a consideration when scoring proposals. Individuals and organizations that do not claim an indirect rate may charge as a direct expense the incremental cost of obtaining the insurance coverage specified in the Sample Grant Agreement.

For the purpose of this program, general and administrative expenses (G&A) are considered an indirect cost.

In the Budget Narrative, indicate any exclusions from the indirect cost base (e.g., subcontracts, graduate student fee remission, equipment, facilities lease costs).

Please double-check your figures to ensure that the categories add up. Total amount requested cannot exceed \$75,000.

California Energy Commission PIER-EA Environmental Exploratory Grant Program PROJECT PERSONNEL	FORM D
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List all key technical personnel on the project who are critical to the success of the work, including the Principal Investigator and Project Manager, if they are separate individuals; indicate a descriptive title after each name (e.g., Electrical Engineer; Graduate Student Research Associate, etc.). In the space below, provide a brief summary of qualifications of the project team, including any existing facilities or specialized equipment that will be used on the project. Do not exceed one page. Attach Résumés (Curriculum Vitae) for all key personnel, not to exceed two pages each.

- 1. List of Key Personnel and Titles**
- 2. Summary of Team Qualifications**

California Energy Commission
PIER-EA Environmental Exploratory Grant Program
RECOMMENDED REVIEWERS

FORM E

The grant applicant has the option to recommend technical reviewers that they would like the EEGP Administrator to consider when deciding which technical reviewers to use for evaluating their proposal. The EEGP Administrator retains final decision authority on selecting reviewers. Please email this form to the EEGP Administrator.

First Recommendation

Name: _____	Address:
Phone: _____ Fax: _____	
Email: _____	
Organization: _____	
Position/Title: _____	

Indicate why you consider this individual qualified in the subject area proposed.

Second Recommendation

Name: _____	Address:
Phone: _____ Fax: _____	
Email: _____	
Organization: _____	
Position/Title: _____	

Indicate why you consider this individual qualified in the subject area proposed.

Third Recommendation

Name:		Address:
Phone:	Fax:	
Email:		
Organization:		
Position/Title:		

Indicate why you consider this individual qualified in the subject area proposed.

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FORM E INSTRUCTIONS

Recommended Reviewers

General Information:

- This form is optional. Please email this form to the EEGP Administrator.
- The intent of this form is to assist the EEGP Administrator in identifying potential qualified technical reviewers for proposals. Of particular interest are individuals that possess expertise in very narrow and specialized areas of science and/or technology that the typical technical reviewer of energy research may not be familiar with.
- Do not recommend individuals that would have a conflict of interest in reviewing your proposal or would even give the appearance of conflict of interest or bias.
- The EEGP Administrator retains the final authority to select the technical reviewers.

Appendix 1. EEGP Technical Evaluation Criteria

Points 0-10

<p>1. Degree to which the research proposal accurately and completely identifies an important California public interest environmental issue related to the generation, transmission, distribution, and use of electricity.</p> <p>The proposal completely and accurately describes the environmental issue to be addressed by the proposed research, including the relationship of the issue to the generation, transmission, distribution, and use of electricity in California.</p> <p>The scientific description of the issue is in sufficient detail to determine that <u>there are significant energy-related environmental public benefits that could be derived by further research built on the findings from the proposed project.</u> (To the extent possible, the importance of the problem may be based on reviewers' evaluation of quantitative benefits (e.g. amount of NOx reduced)).</p>	<p>Weighting Factor: 1.5 Possible Points: 15</p>
<p>2. Degree to which the proposed research identifies Barriers, Issues, and/or Knowledge Gaps.</p> <p>To the reviewer's knowledge, the proposal does not duplicate research. The proposal shows that the project approach is innovative or unique.</p> <p>To the reviewer's knowledge, the proposal clearly identifies, describes and quantifies (where possible) the barriers, issues and/or knowledge gaps.</p> <p>To the reviewer's knowledge, the barriers, issues, and/or knowledge gaps are directly relevant and important to obtaining a better understanding of the issue in California.</p>	<p>Weighting Factor: 1.0 Possible Points: 10</p>
<p>3. Degree to which the proposed research identifies clear, meaningful, and measurable objectives.</p> <p>The proposal lists and describes clear and measurable objectives that will:</p> <ul style="list-style-type: none"> • Support the early development of promising, new scientific concepts; • Lay the foundation for larger-scale research; • Be useful in determining the need for new PIEREA planning efforts (roadmaps); • Improve understanding of key processes that affect environmental quality in California as a result of electricity generation, transmission, distribution, and use; and/or • Provide information in key areas necessary for more informed decision and policy making. <p>The research methods are appropriate for achieving the project's objectives and goals.</p>	<p>Weighting Factor: 1.5 Possible Points: 15</p>

<p>4. The Project Narrative (Section 3.4), Products and due dates (Section 3.4 Item 5), Budget Summary and Budget Forms (Section 3.6 and Form C) are appropriate and reasonable.</p> <p>The Project Narrative demonstrates a clear, appropriate and complete effort.</p> <p>The Project Narrative is composed of a series of interconnected, logical, and discrete tasks.</p> <p>The Project Narrative lays out an approach and plan that is practical and feasible for accomplishing the stated goals and objectives.</p> <p>The Work Schedule reasonably appropriates time and budget with respect to the sequences of tasks, time allocated per task, and the use of labor, equipment, and facilities. If the research involves a particular environmental aspect – the schedule fits the necessary time of year to conduct the research.</p> <p>The budget is appropriate considering: (1) the significance of the barriers, issues, and/or knowledge gaps being addressed, (2) the project's objectives and goals, and (3) the level of effort described in the Project Narrative.</p> <p>The budget shows that key personnel will be committed to the project for the appropriate number of hours and functions to accomplish the tasks and deliverables, and the activities described in the Project Narrative.</p>	<p>Weighting Factor: 2.5 Possible Points: 25</p>
<p>5. The Principal Investigator and the Project Team are well qualified to conduct the project (Form D).</p> <p>The applicant describes in detail, with substantiation, his or her past and current work in the research subject area. Accomplishments (not just activities) are described.</p> <p>The proposal demonstrates the applicant's awareness of current and prior work by others in the proposed research area.</p> <p>The proposal convincingly demonstrates, based on education, training and past experience, that the applicant and project team are capable of conducting all technical, administrative, and budgetary functions and responsibilities, including the ability to control cost, maintain the schedule, and report results and accomplishments in an effective manner.</p> <p>Degree to which the proposal is clearly written and internally consistent.</p>	<p>Weighting Factor: 1.5 Possible Points: 15</p>

6. Degree to which the project is likely to succeed. To the reviewer's understanding, the likelihood that this project is likely to succeed.	Weighting Factor: 1.0 Possible Points: 10
7. Overall technical merit Taking all factors into consideration, including those cited above, the overall technical merit of the proposal.	Weighting Factor: 1.0 Possible Points: 10
Total Technical Reviewer Points:	

Appendix 2. EEGP Programmatic Evaluation Criteria

Points 0-10	
<p>1. Degree to which the research proposal accurately and completely identifies an important California public interest environmental issue related to the generation, transmission, distribution, and use of electricity.</p> <p>The proposal targets an important environmental issue.</p> <p>The public benefits derived by research built on the findings from the proposed project in addressing/resolving the energy-related environmental problem are significant.</p>	<p>Weighting Factor: 1.5 Possible Points: 15</p>
<p>2. Degree to which the proposal identifies Barriers, Issues, and/or Knowledge Gaps.</p> <p>To the reviewer's knowledge, the proposal does not duplicate research. The proposal shows that the project approach is innovative or unique.</p> <p>To the reviewer's knowledge, the proposal clearly identifies, describes and quantifies (where possible) the barriers, issues, and/or knowledge gaps.</p> <p>To the reviewer's knowledge, the barriers, issues, and/or knowledge gaps, are directly relevant and important to obtaining a better understanding of the issue in California.</p>	<p>Weighting Factor: 1.0 Possible Points: 10</p>
<p>3. Degree to which the proposed research identifies clear, meaningful, and measurable objectives.</p> <p>The proposal lists and describes clear and measurable objectives that will:</p> <ul style="list-style-type: none"> • Support the early development of promising, new scientific concepts; • Lay the foundation for larger-scale research; • Be useful in determining the need for new PIEREA planning efforts (roadmaps); • Improve understanding of key processes that affect environmental quality in California as a result of electricity generation, transmission, distribution, and use; and/or • Provide information in key areas necessary for more informed decision and policy making. <p>The research methods are appropriate for achieving the project's objectives and goals.</p>	<p>Weighting Factor: 1.5 Possible Points: 15</p>
<p>4. The Project Narrative (Section 3.4), Products and due dates (Section 3.4 Item 5), Budget Summary and Budget Forms (Section 3.6 and Form C) are appropriate and reasonable.</p> <p>The Project Narrative demonstrates a clear, appropriate and complete effort.</p>	<p>Weighting Factor: 1.5 Possible Points: 15</p>

<p>The Project Narrative is composed of a series of interconnected, logical, and discrete tasks.</p> <p>The Project Narrative lays out an approach and plan that is practical and feasible for accomplishing the stated goals and objectives.</p> <p>The Work Schedule reasonably appropriates time and budget with respect to the sequences of tasks, time allocated per task, and the use of labor, equipment, and facilities. If the research involves a particular environmental aspect – the schedule fits the necessary time of year to conduct the research.</p> <p>The budget is appropriate considering: (1) the significance of the barriers, issues, and/or knowledge gaps being addressed, (2) the project's objectives and goals, and (3) the level of effort described in the Project Narrative.</p> <p>The budget shows that key personnel will be committed to the project for the appropriate number of hours and functions to accomplish the tasks and deliverables, and the activities described in the Project Narrative.</p>	
<p>5. The Principal Investigator and the Project Team are well qualified to conduct the project (Form D).</p> <p>The applicant describes in detail, with substantiation, his or her past and current work in the research subject area. Accomplishments (not just activities) are described.</p> <p>The proposal demonstrates the applicant's awareness of current and prior work by others in the proposed research area.</p> <p>The proposal convincingly demonstrates, based on education, training and past experience, that the applicant and project team are capable of conducting all technical, administrative, and budgetary functions and responsibilities, including the ability to control cost, maintain the schedule, and report results and accomplishments in an effective manner.</p> <p>Degree to which the proposal is clearly written and internally consistent.</p>	<p>Weighting Factor: 1.0 Possible Points: 10</p>
<p>6. Degree to which the project is likely to succeed.</p> <p>To the reviewer's understanding, the likelihood that this project is likely to succeed.</p>	<p>Weighting Factor: 1.0 Possible Points: 10</p>
<p>7. Overall merit.</p> <p>The proposal is original and will enhance the PIER-EA's portfolio of projects.</p>	<p>Weighting Factor: 2.5 Possible Points: 25</p>
<p>Total Programmatic Reviewer Points:</p>	

Environmental Exploratory Grant Program Research Restrictions

Research projects that have already been funded or are planned for funding are restricted from EEGP awards and will not be considered under the EEGP program. These restrictions apply in order to prevent the same proposal from being submitted to multiple programs within PIER, to avoid institutional confusion over which PIER program the applicant is soliciting, and to avoid the duplication of research. These projects are listed in the following order: Land-use and Habitat, Aquatic Resource, Air Quality, Global Climate Change. For more information about PIER research see the PIER web page <http://www.energy.ca.gov/pier/index.html>.

LAND-USE AND HABITAT

- Raptor Electrocution on Power Lines: Problem Assessment, Mitigation, and Monitoring
- Revising and Updating Edison Electric Institute publication: “*Suggested Practices for Raptor Protection on Powerlines: The State of the Art in 1996*”
- Monitoring Raptor Facilities and Validating a Preliminary Model for Predicting Electrocution on SCE and PG&E Distribution Facilities”
- Evaluating and Reducing Avian Collisions at Cosumnes River Preserve
- Raptor Mortality Field Guide
- Bird Electrocution Mitigation Web Site and Product Encyclopedia EPRI
- Bird Strike with Conductors Indicator
- Developing a Risk Prediction Model to Reduce Bird Fatalities in the Altamont Pass Wind Resource Area
- Development of a Cost-Effective System to Monitor Wind Turbines for Bird and Bat Collisions – Phase I, Scoping
- The Cost of Wildlife-caused Power Outages to California’s Economy
- Avian Electrocution and Collision Bibliography
- Range Management Practices to Reduce Wind Turbine Impacts on Burrowing Owls and Other Raptors in the East Bay Regional Parks
- Evaluation of Diverter Effectiveness at San Luis NWR
- Effect of Transmission Line Corridors on the Demography of the Endangered Plant Kern Mallow (*Eremalche kernensis*) and on Plant Species Composition in the Lokern Area
- Planning Alternative Corridors for Transmission Lines
- The Cost of Wildlife-caused Power Outages to California’s Economy
- Assessment of Nitrogen Deposition: Modeling and Habitat Assessment
- Life-Cycle Assessment of Wildland Biomass for Electric Power
- In Response to Ethanol Production Needs in State, Assess Agricultural Crop Change Effects on Sensitive Species, Water Use and Air Quality
- A Pilot Study of Trace Metal Mobilization During Combustion of Biomass Fuels

- Research roadmap for Sustainable Urban Energy Planning
- Development of a Distributed Generation and/or Energy Module for Community Planning Modeling Tools

AQUATIC RESOURCES

- Evaluating the impacts of manufactured streamflows on macroinvertebrate communities of a regulated river at various spatial and temporal scales
- Potential impacts of pulsed flows on reproductive success of freshwater mussels
- Identifying microclimatic and flow-level triggers associated with the onset of river breeding activities of the Foothill yellow-legged frog (*Rana boylei*) on the North Fork of the Feather River, California
- Experimental and field studies to assess pulsed, water-flow impacts on the behavior and distribution of fishes in California rivers
- Bioassessment Tools for Evaluating and Monitoring the Effects of Hydropower Operation on Aquatic Ecosystems
- Spray Enhancement of Air Cooled Condensers
- Assessing and Mitigating the Impacts of Wind on Air Cooled Condensers
- Improved water forecasting for better hydropower production (INFORM)
- Developing Seasonal to Annual Hydropower Forecasts.
- Updated Water Quality Parameters for Cooling Towers
- Trihalomethane Formation in Treated Waters
- Novel Approaches for the Reclaim and Reuse of Boiler Blowdown Streams
- Life-cycle Energy Assessment of Alternative Water Supply Systems in California
- Research on Estimating the Environmental Benefits of Restoration to Mitigate or Avoid Environmental Impacts Caused by California Power Plant Cooling Water Intake Structures
- Testing and Improvement of the ORCM Chinook Salmon Model
- How Fish Sense the Presence of Fish Screens
- Improvements to Instream Flow Determination Methodologies.
- Analyze and Extend the Long term Ichthyoplankton Data Set at King Harbor, Redondo Beach
- Improve the Assessment of Entrainment Impacts Through Models of Coastal and Estuarine Withdrawal Zones
- Testing Whether Increasing the Stimuli of Screens Will Result in Greater Detection Ability by Fish
- Molecular Identification and Enumeration of Invertebrate Bivalve Larvae Potentially Entrained in Sloughs and Bays
- Life History Information for White Croaker, Spotfin Croaker, and Queenfish
- Evaluation of Alternative Models and Methods for Prediction of Hydropower Resources in California and the Pacific Northwest
- Groundwater Contributions to Baseflow in the Merced River: Processes, Flow Paths, and Residence Times
- Evaluation of Power Plant Cooling with Degraded Water

AIR QUALITY

Outdoor Air Quality Projects

- Back-Up Generators/Distributed Generation Air Quality Methodology Study
- Central California Ozone Study
- Air Quality Impacts of Distributed Generation in Central or Southern California
- Test Methodology Development and Characterization of Fine and Ultrafine Particulate Matter from Gas-Fired Combustion
- Portable/Low-Cost Instrumentation Development
- Improvement of Short Range Dispersion Models in Urban Environments
- Heat Island Evaluation
- Seasonal Modeling
- Life-Cycle Analysis of Distributed Generation
- Quantifying the Potential Air Quality Impacts from Electric Demand Embedded in Water Management Choices
- The Efficient Modeling of Chemical Reactions for Pollutant Predictions
- Public Health Benefits of End-Use Electrical Energy Efficiency in California
- Environmental Justice
- Credit Trading
- Continuous Air Pollutant Emissions Monitoring Systems for Distributed Generation
- Evaluation of Titanium Dioxide as an Air Pollutant Removing Catalyst

Indoor Environment Quality Projects

- Portable/Low-Cost Instrumentation Development
- Ventilation Practices and Housing Characteristics in New California Homes
- Analysis of Building Characteristics and Indoor Environmental Quality in California Classrooms
- Emissions from Office Equipment
- Thermal Displacement Ventilation for CA K-12 Schools
- Ventilation Research to Support Title-24 Building Energy Efficiency Standards
- Characterization of Ventilation Rates and IEQ on Small and Medium Size Commercial Buildings
- Improving the Prediction of Indoor Exposure to Outdoor Air Pollution in Apartment Buildings
- Simplified Models for Particulate Dispersion in Buildings

CLIMATE CHANGE

- Protocol to Inter-compare Regional Climate Models
- Development of a dynamic ecosystem model for California
- Enhanced meteorological and hydrological monitoring
- Measurement, Classification, and Quantification of Carbon Market Opportunities: Terrestrial Ecosystems

- Carbon Sequestration in Agricultural Soils
- Optimization of Product Life Cycles to Reduce GHG Emissions
- Planning for Atmospheric Carbon Monitoring in California
- The Environmental Impacts and Economic Potential of Novel Hydrogen-Renewable Infrastructure
- Assessing Landscape Change over 70 years in the Sierra Nevada
- Development of a Hydrogen Roadmap for California
- Air quality and greenhouse gas emissions from dairy farms in California
- Greenhouse gas impacts from zero energy new homes
- Development of a process-based model to estimate changes in coastal conditions due to sea level rise
- Inter-comparison of regional climate models
- Aerosols and precipitation levels in high elevations in California
- Effect of increased temperatures on public health outcomes
- Aerosols and solar radiation in California: impacts on climate
- Potential Advanced Energy Pathways for California
- Long-term ambient monitoring of CO₂ and non-CO₂ gases to estimate trends and source regions in California.
- Measurement of soil carbon for carbon sequestration projects
- Development of supply curves for one county in California: an in-depth analysis
- Pilot demonstration projects for carbon sequestration in terrestrial ecosystems.
- Probabilistic Climate Projections for California
- Economic Studies of GHG Emission Reduction Options
- Improving Inventory Methods for N₂O Emissions from Agriculture
- Updating CEC Estimates of Emissions in CA
- Evaluating Measurements of Black Carbon Particles
- Optimization of Distributed Energy Networks (Fuel Cells) to Reduce GHG Emissions in California
- Measurement of Large-Scale Gene Flow for Understanding Adaptation and Genetics of Climatic Tolerance

Carbon Sequestration in Geological formations

- Development of Geologic Baseline Data
- Development of a Risk Assessment Framework
- Characterization of Large CO₂ Point Sources
- Economic Assessment of Geologic Sequestration Options
- Monitoring Protocols for Geologic Sequestration
- Assessment of Regulations for Geologic Sequestration
- Use of Decision Analysis to Assist in Selection of Best Options for Carbon Storage
- Decision Analysis for Selection of Geologic and Terrestrial Sequestration Options
- Pilot demonstration projects
- Physical Modeling of CO₂ Sequestration

SUBCONTRACT No. **INPUT**
between
THE REGENTS of the UNIVERSITY of CALIFORNIA,
OFFICE of the PRESIDENT
and
****INPUT****

Project Title: **INPUT**

This Subcontract is between The Regents of the University of California, Office of the President (“UCOP” or “The Regents”) on behalf of the California Institute for Energy and Environment (“CIEE”) and **INPUT** (“Subcontractor”).

Whereas, the California State Energy Resources Conservation and Development Commission (“Commission” or “CEC”) is responsible for implementing the Public Interest Energy Research (PIER) Program; and

Whereas, UCOP has entered into Agreement **INPUT** with the Commission to fund research, development, and demonstration awards for the PIER Program; and

Whereas, Subcontractor’s proposal has been selected for conducting research or other activities contributing to the Commission’s mission and to the purposes of the prime contract;

NOW THEREFORE, the Parties mutually agree as follows:

1. SCOPE OF WORK

The research to be provided under this Subcontract shall be in accordance with the following Exhibits, which are attached and incorporated herein:

Exhibit A:	Statement of Work, including Attachment A-1 and Schedule of Deliverables
Exhibit B:	Project Budget
Exhibit C:	Definitions

The Statement of Work may be modified by mutual written agreement of the Parties. Significant changes in the scope of work must be approved by UCOP and the Commission by amendment to this Subcontract.

If, at any time during the performance of this Subcontract, the Subcontractor becomes aware of any circumstances whatsoever which may jeopardize its fulfillment of the agreed performance of all or any portion of the Subcontract, it shall immediately notify the Regents’ Subcontract Administrator in writing of such circumstances, and the Subcontractor shall take whatever action is necessary to cure such defect within the shortest possible time.

2. PERIOD OF PERFORMANCE

The period of performance for this Subcontract shall be from **INPUT** through **INPUT**.

3. BUDGET AND EXPENDITURES

- A. The total amount of funds made available and reimbursable under this Subcontract shall not exceed \$INPUT in accordance with the approved budget in Exhibit B.
- B. Allowable costs shall be determined in accordance with OMB Circular A-21, "Cost Principles Applicable to Grants, Contracts and Other Agreements with Institutions of Higher Education," incorporated by reference as part of this Subcontract. OMB Circulars may be accessed from the Office of Management and Budget website, www.whitehouse.gov/omb/circulars/index.html.
- C. Prior written approval by UCOP is required for the following:
 - 1) Increases in budget categories in excess of \$5,000 **and** 15% of the amount originally approved for that category (i.e., budget reallocations under \$5,000, regardless of the percent change represented, do not require prior approval). No increase in the total budget amount shall be allowed except by amendment to this Subcontract.
 - 2) Expenditures for additional equipment, as defined in Paragraph 7 herein.
- D. Items included in the budget in Exhibit B are considered approved. Unless specifically approved by UCOP, funds are not authorized for entertainment or purchase of general-purpose software or office equipment, including computers, typewriters, word processors, duplication devices, and telecommunication devices.

IF NOT AN INDIVIDUAL

- E. Subcontractor shall have written corporate compensation and fringe benefit policies for employees, applicable to contract work with all parties, which are the basis for rates proposed in budgets, and for billing and reimbursement of such costs.
- F. Lower-tier subcontractors who are individuals must have established billing rates which include compensation and fringe benefits that are proposed to all parties, unless the rates are discounted for government funded work, as the basis for proposing rates in budgets, and for billing for work performed during the period of the Subcontract. If the period of performance is expected to exceed one year and a rate increase is required for this extended period, the proposed rate(s) for this period must be included in the initial proposed budget. The rates as proposed and accepted will be reimbursed without change.

IF AN INDIVIDUAL (INCLUDING DBAs)

- E. Subcontractor must have established billing rates which include compensation and fringe benefits that are proposed to all parties, unless the rates are discounted for government funded work, as the basis for proposing rates in budgets, and for billing for work performed during the period of the Subcontract. If the period of performance is expected to exceed one year and a rate increase is required for this extended period, the proposed rate(s) for this period must be included in the initial proposed budget. The rates as proposed and accepted will be reimbursed without change.

4. SUBCONTRACT MANAGEMENT AND KEY PERSONNEL

- A. Subcontractor Principal Investigator and Key Personnel. INPUT is designated as the Subcontractor Principal Investigator. Key Personnel for the Project includes the Principal

- Investigator and **INPUT**. No substitution of key personnel may be made without UCOP's prior written approval.
- B. UCOP Research Coordinator. **INPUT** is designated as the UCOP Research Coordinator. The Research Coordinator is responsible for oversight of performance under this Subcontract.
 - C. UCOP Subcontract Administrator. Brad Niess is designated as Subcontract Administrator. The Subcontract Administrator is responsible for administration of this Subcontract, and may authorize no-cost extensions and rebudgeting; administrative issues are to be routed through him for forwarding to the appropriate UCOP representative.

5. INVOICING AND PAYMENT

- A. UCOP shall provide monthly payments in arrears upon receipt of an itemized invoice containing the following elements:
 - 1) Salaries and wages (including fringe benefits) for all personnel
 - 2) Expenditures for each subcontract or consultant (if any)
 - 3) Travel
 - 4) Equipment
 - 5) Miscellaneous expenses
 - 6) Indirect costs
- B. Payments will be made provided that the Commission Project Manager has received and approved the written progress reports and any other required deliverables.
- C. Invoices may be sent via hardcopy, email, or fax as follows:

Subcontract Specialist
California Institute for Energy and Environment
UC Office of the President
1333 Broadway, Suite 240
Oakland, CA 94612-1918
Phone: (510) 287-3329
Fax: (510) 287-3328
Email: Stephen.Cunningham@ucop.edu
- D. Subcontractor's final invoice must be submitted no later than 60 calendar days after the termination of this Subcontract.

6. SUBCONTRACTORS

Except for Subcontractors identified in the approved budget in Exhibit B, Subcontractor shall not subcontract or assign any part of the Scope of Work with a cost in excess of \$5,000 without prior written approval by UCOP. Subcontractor shall not contract with University of California employees without prior written approval from UCOP. Subcontractor shall require its lower tier subcontractors to comply with the terms and conditions contained herein.

7. EQUIPMENT

- A. Definition. Equipment is defined as non-expendable, tangible, personal property, which has an acquisition cost of \$5,000 or more, is free-standing, and has a normal life expectancy of one year or more.
- B. Title. Except as otherwise provided by the Regents, title to any equipment purchased with Subcontract funds shall pass directly from the vendor to the Regents. Property furnished by the Regents, and equipment purchased or held by the Subcontractor, title to which vests in the Regents under this paragraph, are hereinafter referred to as Regents' property. Title to Regents' property shall not be affected by the incorporation of the property into or the attachment of it to any property not owned by the Regents; nor shall such Regents property or any part thereof be or become a fixture or lose its identity by reason of affixation to any realty.
- C. Identification. To the extent directed by the Regents, the Subcontractor shall identify Regents' property coming into the Subcontractor's possession or custody by marking or segregating in such a way, satisfactory to the Regents, as shall indicate its ownership by the Regents.
- D. Disposition. Upon termination of this Subcontract or when the equipment is no longer needed for the project funded under this Subcontract, whichever is sooner, Subcontractor shall contact UCOP to request disposition instructions regarding equipment. If no disposition instructions are provided within 120 days after such request, the Subcontractor shall have no further obligation to UCOP regarding such equipment. When authorized in writing by the Regents during the progress of the work or upon completion or termination of this Subcontract, the Subcontractor may, upon such terms and conditions as the Regents may approve, sell or exchange such property or acquire such property at a price agreed upon by the Regents and the Subcontractor as the fair value thereof. The amount received by the Subcontractor as the result of any disposition or the amount of the agreed fair value of any such property acquired by the Subcontractor shall be applied in reduction of costs allowable under this Subcontract or shall be otherwise credited to account of the Regents, as the Regents may direct. Upon completion of the work or the termination of this Subcontract, the Subcontractor shall render an accounting, as prescribed by the Regents, of all Regents' property which has come into the possession or custody of the Subcontractor under this Subcontract.

8. TRAVEL AND PER DIEM

FOR PUBLIC ENTITIES (Other Public Universities, Gov't)

- A. Subcontractor shall be reimbursed for travel and per diem in accordance with the rates approved by Subcontractor's governing body. Travel expenses in excess of the Subcontractor-approved rates cannot be reimbursed. Travel expenses shall be paid from the location where the employees assigned to the Subcontract are permanently located.
- B. Subcontractor must document travel expenses in its records as follows:
 - 1) Expenses must be detailed using the Subcontractor-approved rates.
 - 2) Expenses must be listed by trip including dates and times of departure and return.
 - 3) Subcontractor must retain receipts for travel expenses claimed for audit and verification.

FOR PRIVATE ENTITIES (Private Universities, non-profits, Corp, Individuals)

- A. Subcontractor shall be reimbursed for travel and per diem in accordance with the prevailing rates for Non-Represented State of California Employees. Current reimbursement rates can be found at <http://www.dpa.ca.gov/jobinfo/statetravel.shtm>. Travel expenses in excess of the approved rates cannot be reimbursed. Travel expenses shall be paid from the location where the employees assigned to the Subcontract are permanently located.
- B. Subcontractor must document travel expenses in its records as follows:
 - 1) Expenses must be detailed using the approved rates.
 - 2) Expenses must be listed by trip including dates and times of departure and return.
 - 3) Subcontractor must retain receipts for travel expenses claimed for audit and verification.

9. STANDARD OF PERFORMANCE

- A. In performing work under this Subcontract, Subcontractor shall be responsible for exercising the degree of skill and care required by customarily accepted good professional practices and procedures.
- B. In the event that Subcontractor fails to perform in accordance with the foregoing standard of performance, UCOP, the Commission, and Subcontractor shall seek to negotiate in good faith an equitable resolution satisfactory to both parties. If such a resolution cannot be reached, the parties shall work through the dispute resolution process described in Paragraph 14 herein, DISPUTES.
- C. Nothing contained in this section is intended to limit any of the rights or remedies which UCOP or the Commission may have under law.

10. INDEPENDENT CONTRACTOR

Subcontractor and its employees, consultants, agents, or independent contractors will perform all services under this Subcontract as independent contractors. Nothing in this Subcontract will be deemed to create an employer-employee or principal-agent relationship between the Regents or Commission and Subcontractor's employees, consultants, agents, or independent contractors. Subcontractor and its employees, consultants, agents and lower tier subawardees will not, by virtue of any services provided under this Subcontract, be entitled to participate, as an employee or otherwise, in or under any employee benefit plan of Regents or any employment right or benefit available to or enjoyed by employees of Regents.

11. CONFIDENTIALITY

IF confidential deliverables are NOT anticipated, use this paragraph:

No confidential deliverables are anticipated under this Subcontract. All products including, but not limited to, Progress Reports, task products, and the Final Report shall not contain confidential information except when the Commission Contract Manager and OP/CIEE deem it necessary to include confidential information in a product. In such event, Subcontractor shall prepare the deliverable in two separate volumes: one for public distribution and one to be maintained in UCOP's and the Commission's

confidential records. Subcontractor shall abide by UCOP's and the Commission's current policies on identifying and submitting confidential data.

IF confidential deliverables ARE anticipated, use these paragraphs:

- A. **Determination.** The Commission Executive Director makes the final determination of confidentiality. In the event there is a disagreement over the items to be delivered under the Subcontract, the Parties shall use the Disputes clause. If Subcontractor wishes to appeal the Executive Director's determination, the appeal shall be made via UCOP to the full Commission. If Subcontractor disagrees with this determination, Subcontractor may seek judicial review as per Title 20 CCR 2501, et seq.
- B. **Public and Confidential Products.** Only those products/items specifically listed in this Subcontract or in a subsequent determination of confidentiality qualify as confidential products. All products including, but not limited to, progress reports, task products and the Final Report shall not contain confidential information except when the Commission and UCOP deem it necessary to include confidential information in a product. In such event, Subcontractor shall prepare the deliverable in two separate volumes, one for public distribution and one to be maintained in the Commission's confidential records.
- C. **Future Confidential Information.** During the period of this Subcontract, it is possible that Subcontractor may develop additional data or information that UCOP/Commission considers being protectable as confidential information. In this event, the Commission shall provide a copy of the Commission Application for Confidential Designation to Subcontractor, via UCOP. Subcontractor must list all items and information along with justification for confidentiality and submit the application to the Commission via UCOP.
- D. **Identifying and Submitting Confidential Information.** Each document containing confidential information submitted by Subcontractor shall be marked "Confidential" and delivered in a sealed package to the Commission via UCOP. The confidential information will only be available to those persons authorized by the Commission's Executive Director.

12. INTELLECTUAL PROPERTY DEVELOPED PRIOR TO THIS SUBCONTRACT

Neither UCOP nor the Commission makes a claim to intellectual property that existed prior to this Subcontract and was developed without UCOP or Commission funding. Each Scope of Work shall identify any applicable pre-existing intellectual property.

13. INTELLECTUAL PROPERTY

Terms used in this paragraph and elsewhere in this Subcontract are defined in Exhibit C, Definitions.

- A. **UCOP's and Commission's Rights in Deliverables.** Deliverables and reports specified for delivery to UCOP and the Commission under this Subcontract shall become the property of the Commission. UCOP and the Commission may use, publish, and reproduce the deliverables and reports subject to the provisions of Subparagraph C.
- B. **Rights in Technical, Generated, and Deliverable Data**
 - 1) **Subcontractor's Rights.** Data (technical, generated and deliverable) produced under this Subcontract shall be the property of Subcontractor, limited by the license retained by

UCOP and the Commission in (2) below, and the rights that UCOP and the Commission have in deliverables specified above in Subparagraph A.

- 2) UCOP's and Commission's Rights. Subcontractor shall provide UCOP and the Commission with a copy of all technical, generated and deliverable data produced under the Subcontract, when requested.

Subcontractor is not required to copy and submit data that the Commission Project Manager has identified as being unusable to the Commission and the PIER program. For instance, some data may not warrant routine copying and shipping because this raw data is too disaggregated or voluminous for practical application. Retention of such data at Subcontractor's facility for inspection, review and possible copying by the Commission is expected to be a more efficient use of Commission staff and Subcontractor's time and efforts. However, upon request by the Commission, Subcontractor shall provide the Commission access to review technical and generated data produced in the course of this Subcontract that is not requested to be delivered.

For all data (technical, generated and deliverable) produced under this Subcontract, UCOP and the Commission retain a no-cost, non-exclusive, non-transferable, irrevocable, royalty-free, worldwide, perpetual license to use, publish, translate, produce and to authorize others to produce, translate, publish and use the data, subject to the provisions of Subparagraph C.

C. Limitations on Disclosure of Subcontractor's Confidential Records

- 1) Data provided to UCOP and the Commission by Subcontractor, which data UCOP and the Commission have not already agreed to keep confidential and which Subcontractor seeks to have designated as confidential, or is the subject of a pending application of confidentiality, shall not be disclosed by UCOP or the Commission except as provided in Title 20 CCR Sections 2506 and 2507 (or as they may be amended), unless disclosure is ordered by a Court of competent jurisdiction.
- 2) It is the Commission's intent to use and release project results such as deliverables and data in a manner calculated to further PIER while protecting proprietary or patentable interests of the parties. Therefore, UCOP and the Commission shall not disclose confidential data or the contents of reports containing data considered by Subcontractor as confidential, without first providing a copy of the disclosure document for review and comment by Subcontractor. Subcontractor shall have no less than 10 working days for review and comment and, if appropriate, to make an application for confidentiality on some or all of the data. The Commission shall consider the comments of Subcontractor and use professional judgment in revising the report, information or data accordingly.

D. Exclusive Remedy. In the event that UCOP or the Commission intends to publish or has disclosed data that Subcontractor considers confidential, Subcontractor's exclusive remedy is a civil court action for injunctive relief. Such court action shall be filed in Sacramento County, Sacramento, California.

E. Waiver of Consequential Damages. In no event will UCOP or the Commission be liable for any special, incidental, or consequential damages based on breach of warranty, breach of contract, negligence, strict tort, or any other legal theory for the disclosure of Subcontractor's confidential records, even if UCOP or the Commission has been advised of the possibility of

- such damage. Damages that UCOP and the Commission will not be responsible for include, but are not limited to, loss of profit; loss of savings or revenue; loss of goodwill; loss of use of the product or any associated equipment; cost of capital; cost of any substitute equipment, facilities, or services; downtime; the claims of third parties including customers; and injury to property.
- F. Limitations on Subcontractor Disclosure of Subcontract Data, Information, Reports and Records
- 1) Subcontractor will not disclose the contents of the final or any preliminary deliverable or report without first providing a copy of the disclosure document for review and comment to UCOP and the Commission Project Manager. Subcontractor shall consider the comments of UCOP and the Commission Project Manager and use professional judgment in revising the reports, information or data accordingly.
 - 2) After any document submitted has become a part of the public records of the State, Subcontractor may, if it wishes to do so at its own expense, publish or utilize the same, but shall include the legal notice as stated in Exhibit A of this Subcontract.
 - 3) Notwithstanding the foregoing, in the event any public statement is made by UCOP or the Commission as to the role of Subcontractor or the content of any preliminary or Final Report of Subcontractor hereunder, Subcontractor may, if it believes such statement to be incorrect, state publicly what it believes is correct.
 - 4) No record that is provided by UCOP or the Commission to Subcontractor for Subcontractor's use in executing this Subcontract and which has been designated as confidential, or is the subject of a pending Application for Confidential Designation, except as provided in Title 20, California Code of Regulations (CCR), sections 2506 and 2507, shall be disclosed, unless disclosure is ordered by a court of competent jurisdiction (Title 20 CCR, Sections 2501, et seq.). At the election of UCOP or the Commission, Subcontractor, Subcontractor's employees, and any subcontractor shall execute a "Confidentiality Agreement," supplied by UCOP.
 - 5) Subcontractor acknowledges that each of its officers, employees, and subcontractors who are involved in the performance of this Subcontract will be informed about the restrictions contained herein and to abide by the above terms.
- G. Proprietary Data. Proprietary data owned by Subcontractor shall remain with Subcontractor throughout the term of this Subcontract and thereafter. The extent of UCOP and Commission access to the same and the testimony available regarding the same shall be limited to that reasonably necessary to demonstrate, in a scientific manner to the satisfaction of scientific persons, the validity of any premise, postulate or conclusion referred to or expressed in any deliverable hereunder or to establish a baseline for repayment purposes.
- H. Preservation of Data. Any data which is reserved to Subcontractor by the express terms hereof, and pre-existing proprietary or confidential data which has been utilized to support any premise, postulate or conclusion referred to or expressed in any deliverable hereunder, shall be preserved by Subcontractor at Subcontractor's own expense for a period of not less than three years after final payment, unless a longer period of record retention is stipulated.

- I. Destruction of Data. Before the expiration of three years and before changing the form of or destroying any such data, including technical, generated, deliverable proprietary data or trade secrets, Subcontractor shall notify UCOP and Commission of any such contemplated action and UCOP or Commission may, within thirty (30) days after said notification, determine whether it desires said data to be further preserved. If UCOP or Commission so elects, the expense of further preserving said data shall be paid for by UCOP or the Commission. Subcontractor agrees that UCOP or Commission may, at its own expense, have reasonable access to said data throughout the time during which said data is preserved. Subcontractor agrees to use its best efforts to identify competent witnesses to testify in any court of law regarding said data or, at UCOP's or Commission's expense, to furnish such competent witnesses.
- J. Patent Rights
- 1) Patent rights for any Subject Invention, whether actually patented or unpatented, will be the property of Subcontractor whose employees or researchers are inventors of such invention pursuant to U.S. patent law, subject to UCOP or the Commission obtaining a no-cost, nonexclusive, nontransferable, irrevocable, perpetual, royalty-free, worldwide license to use or have practiced such rights for or on behalf of the State of California for governmental purposes. Commission shall not purposefully enter into competition with a Licensee or take affirmative actions intended to effectively destroy the commercial market where a Licensee has introduced a Licensed Product. Subcontractor must obtain agreements to effectuate this clause with all persons or entities, except for the U.S. Department of Energy (other rights apply; contact UCOP for information), obtaining ownership interest in such patent rights. Previously documented inventions (whether patented or unpatented under the patent laws of the United States of America or any foreign country) are exempt from this provision.
 - 2) Subcontractor shall disclose to UCOP and Commission on a confidential basis all Subject Inventions. UCOP or the Commission may provide any suggestions to Subcontractor concerning commercialization strategies and/or potential licensees for such invention within sixty (60) days of receiving the disclosure from Subcontractor. Subcontractor shall send, by March 1 of each year, a report to UCOP that provides non-proprietary information on the status of any patents and/or licensing agreements executed or under negotiation for Subject Inventions and/or activities by Licensee related to the development and testing of Licensed Product. UCOP will forward this report to the Commission.
 - 3) March-in Rights. With respect to any Subject Invention in which Subcontractor has acquired title, to the extent permissible under Federal laws and regulations, UCOP and the Commission shall have the right to require Subcontractor, an assignee or Licensee of such patent rights to grant a nonexclusive, partially exclusive, or exclusive license in any field of use to a responsible applicant, upon terms that are reasonable under the circumstances, and if Subcontractor, assignee, or Licensee refuses such request, to grant such a license itself, if UCOP or the Commission determines that:
 - a) such action is necessary because Subcontractor, Licensee, or assignee has not taken, or is not expected to take within a reasonable time, effective steps to achieve practical application of the patent rights in such field of use; or

- b) such action is necessary to alleviate health or safety needs that are not reasonably satisfied by Subcontractor, assignees, or their Licensees.

Final resolution, if not resolved under Paragraph 14, DISPUTES, will be settled in the courts of the State of California. The parties may refer to the Federal Government's procedures for handling march-in rights.

- 4) Future Reductions. Subcontractor will submit to UCOP and Commission in confidence within ninety (90) days after termination or expiration of this Subcontract, a report listing inventions that are conceived, but not actually reduced to practice, in the performance of this Subcontract. The Commission will identify in writing within 60 days those conceptions that it desires to reserve rights to should Subcontractor desire to actually reduce to practice those identified conceptions within 42 months after the termination or expiration of the Subcontract. Subcontractor has an affirmative duty to report to UCOP and the Commission those conceptions reduced to practice within the 42-month period.
- K. UCOP's and Commission's Rights to Invention. Subcontractor and all persons and/or entities obtaining an ownership interest in Subject Invention(s) shall include within the specification of any United States patent application, and any patent issuing thereon covering a Subject Invention, the following statement:

This invention was made with State of California support under California Energy Commission Agreement number **INPUT**. The Energy Commission has certain rights to this invention.

- L. Commission's Interest in Inventions. Upon the perfecting of a patent application on any Subject Invention, Subcontractor will fill out and sign a Uniform Commercial Code (UCC.1) Financing Statement and submit it to the Commission Contract Officer for complete processing, with a copy to UCOP. The Commission Contract Officer will review the UCC.1 for complete information and file the completed UCC.1 with the Secretary of State's Office.

M. Copyrights

- 1) Copyrightable work first produced under this Subcontract shall be owned by Subcontractor, limited by the license granted to UCOP or the Commission in (2) below.
- 2) Subcontractor agrees to grant UCOP and the Commission a royalty-free, no-cost, nonexclusive, irrevocable, non-transferable, worldwide, perpetual license to produce, translate, publish, use and dispose of, and to authorize others to produce, translate, publish, use and dispose of all copyrightable work first produced or composed in the performance of this Subcontract.
- 3) Subcontractor will apply copyright notices to all Deliverables using the following form or such other form as may be reasonably specified by Commission:

©[Year of first publication of deliverable], [copyright holder]. All Rights Reserved.

- 4) Software. In the event software that is not a deliverable is developed under the Subcontract, Subcontractor shall have the right to copyright and/or patent such software and grants UCOP and the Commission a royalty-free, no-cost, non-exclusive, irrevocable,

non-transferable, world-wide, perpetual license to produce and use for governmental purposes the software, and its derivatives and upgrades that may be developed by the authors within 42 months following the termination or expiration of this Subcontract. Neither UCOP nor the Commission shall purposefully enter into competition with a Licensee or take affirmative actions intended to effectively destroy the commercial market where a Licensee has introduced a licensed product.

- N. Intellectual Property Indemnity. Subcontractor will defend and indemnify UCOP and the Commission from and against any claim, lawsuit or other proceeding, loss, cost, liability or expense (including court costs and reasonable fees of attorneys and other professionals) to the extent arising out of any third party claim solely arising out of the negligent or other tortious act(s) or omission(s) by Subcontractor, its employees, or agents, in connection with intellectual property claims against either deliverables or Subcontractor's performance thereof under this Subcontract.

14. DISPUTES

In the event of a contract dispute or grievance, the following procedure shall be followed by all parties:

- A. Commission Dispute Resolution. If a problem cannot be resolved within 10 working days between the Commission Contract Manager, the UC Contract Manager, and Subcontractor, then Subcontractor shall prepare a package in writing stating the issues in the dispute, the legal authority or other basis for Subcontractor's position and the remedy sought. The package must be submitted to UCOP and to the Commission Dispute Resolution Committee. The Committee shall make a determination on the problem within 10 working days after receipt of the package. Should OP/Subcontractor disagree with the Committee's decision, OP/Subcontractor may appeal to the full Commission at a regularly scheduled business meeting. The Committee will provide OP/Subcontractor with the current procedures for placing the appeal on a Commission Business Meeting Agenda.

Subcontractor shall continue with the responsibilities under this Subcontract during any dispute.

- B. Binding Arbitration. Should the Commission's Dispute Resolution procedure identified in Subparagraph A above fail to resolve a contract dispute or grievance to the satisfaction of Subcontractor, Subcontractor may elect to have the dispute or grievance resolved through binding arbitration. The Commission may also elect to have any contract dispute or grievance resolved through binding arbitration. Both parties must agree to submit the dispute or grievance to arbitration. The arbitration proceeding shall take place in Sacramento County, California, and shall be governed by the commercial arbitration rules of the American Arbitration Association (AAA) in effect on the date the arbitration is initiated. The dispute or grievance shall be resolved by one arbitrator who is an expert in the particular field of the dispute or grievance. The arbitrator shall be selected in accordance with the aforementioned commercial arbitration rules. The decision rendered by the arbitrator shall be final, and judgment may be entered upon it in accordance with the applicable law in any court having jurisdiction thereof. The demand for arbitration shall be made no later than six months after the date of the contract's termination, irrespective of when the dispute or grievance arose, and irrespective of the applicable statute of limitations for a suit based on the dispute or grievance.

The cost of arbitration shall be borne by the parties as follows:

- 1) The AAA's administrative fees shall be borne equally by the parties;
- 2) The expense of a stenographer shall be borne by the party requesting a stenographic record;
- 3) Witness expenses for either side shall be paid by the party producing the witness;
- 4) Each party shall bear the cost of its own travel expenses;
- 5) All other expenses shall be borne equally by the parties, unless the arbitrator apportions or assesses the expenses otherwise as part of his or her award.

At the option of the Parties, any or all of these arbitration costs may be deducted from any balance of Subcontract funds. Both Parties must agree, in writing, to utilize Subcontract funds to pay for arbitration costs.

- C. If the Parties do not mutually agree to arbitration, the Parties agree that the forum to resolve a dispute is State court or Federal court, with the exception of Federal bankruptcy court.

15. STOP WORK

The Commission may, at any time, by written notice to the UCOP and Commission Contract Officers, require UCOP and Subcontractor to stop all or any part of the Subcontract work tasks. UCOP shall immediately notify Subcontractor.

- A. Compliance. Upon receipt of such Stop Work order, Subcontractor shall immediately take all necessary steps to comply therewith and to minimize the incurrence of costs allocable to work stopped.
- B. Equitable Adjustment. An equitable adjustment shall be made by the Commission based upon a written request submitted by Subcontractor via UCOP. Such adjustment request must be made within 30 days from the date of receipt by UCOP of the Stop Work notice.
- C. Revoking a Stop Work Order. Subcontractor shall resume stopped work only upon receipt of written instructions from UCOP canceling the Stop Work order.

16. TERMINATION

- A. Default. In the event of any default, Commission may, without prejudice to any of its other legal remedies, terminate the prime contract upon five (5) days' written notice to UCOP; UCOP shall immediately notify Subcontractor. In such event, UCOP shall pay only the reasonable value of the satisfactory services theretofore rendered by Subcontractor, as may be agreed upon by the parties or determined by a court of law, but not in excess of Subcontract maximum payable.
- B. For Cause. The Commission may, for cause, and at its option, terminate the prime contract upon giving 30 days' advance written notice to UCOP. UCOP shall immediately notify Subcontractor. In such event, Subcontractor agrees to use all reasonable efforts to mitigate its expenses and obligations. Commission will pay for services rendered and expenses incurred within the terms of the work statement and which were satisfactorily performed prior to such notice of termination which could not by reasonable efforts of Subcontractor have been avoided, but not in excess of Subcontract maximum payable.

The term "for cause" includes, but is not limited to, the following reasons:

- Loss of State or Federal funding for this Subcontract;

- significant change in State or Commission policy such that the work or product being funded would not be supported by the Commission;
 - reorganization or attempted assignment and delegation to a business entity unsatisfactory to the Commission;
 - change in Commission's staffing such that the work or product being funded can be done by staff of the Commission.
- C. Allowable Termination Costs. OMB Circular A-21, Section J.50, shall be used to determine allowable termination costs, but not in excess of the total amount of this Subcontract.

17. NOTICE

Legal notices as required in this Subcontract may be given using the following delivery methods: certified mail, Federal Express, United Parcel Service, or personal delivery, providing evidence of receipt, to the parties described in Exhibit A.

Delivery by fax or email is not considered notice for the purpose of this Subcontract. Legal notice shall be effective when received, unless a legal holiday for the State commences on the date of the attempted delivery, in which case the effective date shall be postponed 24 hours, or whenever the next business day occurs.

18. RECORDKEEPING AND AUDIT PROVISIONS

- A. Recordkeeping. The Subcontractor shall maintain books, records, documents, and other evidence, in accordance with generally accepted accounting principles, and sufficient to reflect properly all costs claimed to have been incurred in performing this Subcontract.
- B. Audit Rights. This Subcontract shall be subject to examination and audit by UCOP, the Commission, the California Department of General Services, and the Bureau of State Audits, or their designated representative, during the performance of work hereunder and for a period of three years after final payment under this Subcontract, unless a longer period of record retention is stipulated. Each shall have the right to review and to copy any records and supporting documentation pertaining to the performance of this Subcontract if it exceeds \$10,000. Access to such records during normal business hours, and the right to interview any employee who might reasonably have information related to such records, shall be permitted. Reasonable prior notice of any audit shall be provided by UCOP or Commission.
- C. Refund to UCOP or Commission. If UCOP or Commission determines that any invoiced and paid amounts exceed the actual allowable incurred costs, Subcontractor shall repay such amounts to Commission via UCOP within 60 days of request or as otherwise agreed by the Commission and UCOP. If such repayments are not received by Commission, UCOP shall be entitled to withhold further payments to Subcontractor.
- D. Audit Cost. The cost of a planned audit shall be borne by the Commission. If a planned audit results in a material finding, the Commission may determine that a special audit is required. The reasonable cost to the Commission of a special audit will be borne by the performing entity which is the subject of the special audit.

19. PAYMENTS TO COMMISSION

This Paragraph applies only to awards for research projects. This Subcontract ☐ is ☐ is not for a research project subject to this Paragraph.

- A. In consideration of the Commission providing funding via UCOP, Subcontractor agrees to pay the Commission a portion of either Net Revenues or Net Royalties under the terms and conditions hereinafter set forth.
- B. Net Royalties. If Subcontractor licenses to a Licensee, Subcontractor's obligation to make payments to the Commission shall commence from the date that the Net Royalties calculation is positive. Payments are payable in annual installments and are due the first day of March for Net Royalties calculation made for Subcontractor's prior fiscal year. Subcontractor agrees to pay to Commission an amount equivalent to 10% of the total cumulative Net Royalties for itself and all its subcontractors, less payments made by Subcontractor to the Commission in previous years when Net Royalties for Subcontractor were positive. Payments shall be made by check, made payable to the California Energy Commission, PIER Fund.
- C. Net Revenues. If Subcontractor is the Licensee, Subcontractor's obligation to make payments to the Commission shall commence upon the first sale of the Licensed Product. Payments are payable in annual installments and are due the first day of March for the prior fiscal year of Subcontractor. Subcontractor agrees to pay an amount equivalent to 1.5% of the Net Revenues by check made payable to the California Energy Commission, PIER Fund.
- D. Subcontractor agrees to and shall require each of its subcontractors to agree not to make any sale, license, lease, gift or other transfer of any Subject Invention, Copyrightable Work or Project-Related Products (PRP) with the intent of, or for the purpose of, depriving Commission of Net Royalties or Net Revenues hereunder. Generally, this means that Subcontractor will not make any sale, license, lease or other transfer of PRP for consideration other than fair market value except for research, educational, or other mutually agreed to purposes intended to serve the public benefit.
- E. Subcontractor and all its subcontractors shall maintain separate accounts within their financial and other records for purposes of tracking royalties and revenues due to the Commission under this Subcontract.
- F. Audits on Payments to Commission. Payments to the Commission are subject to audit as provided for under Paragraph 18, Recordkeeping and Audit Provisions.
- G. Defaults. In the event of default hereunder, the Commission shall be free to exercise all rights and remedies available to it herein, and under law and at equity. Subcontractor's failure to pay, when due, any amount due and payable under the terms of this Subcontract, shall constitute a default under this Subcontract:
- H. Subcontractor acknowledges that a late payment of royalties/revenues owed to the Commission will cause the Commission to incur costs not contemplated by the parties. If a royalty/revenue payment is not paid when due, Subcontractor agrees to pay the Commission a late fee equal to 2% of the payment due. Additionally, Subcontractor agrees that royalty/revenue payments not paid within 15 days of the due date shall thereupon become debt obligations of Subcontractor to the Commission, due upon demand and bearing interest at the maximum interest rate allowed by law.

- I. The parties agree that Subcontractor does not guarantee compliance with payments under this Paragraph in the event of default by a subcontractor to Subcontractor. Amounts in default and not paid by Subcontractor's subcontractor will not be paid by Subcontractor under Subparagraphs B and C, and the fees and obligations of Subparagraph H pursuant to such default and non-payment shall not be a responsibility of Subcontractor. However, Subcontractor has an affirmative duty to monitor its subcontractors' compliance and take reasonable enforcement measures calculated to obtain its subcontractors' performance of the payment obligations of this Paragraph.

20. INDEMNIFICATION

- A. Subcontractor shall defend, indemnify, and hold The Regents, its officers, employees, and agents harmless from and against any and all liability, loss, expense (including reasonable attorneys' fees), or claims for injury or damages arising out of the performance of this Subcontract but only in proportion to and to the extent such liability, loss, expense, attorneys' fees, or claims for injury or damages are caused by or result from the negligent or intentional misconduct or omissions of Subcontractor, its officers, agents, or employees.
- B. The Regents shall defend, indemnify, and hold Subcontractor, its officers, employees, and agents harmless from and against any and all liability, loss, expense (including reasonable attorneys' fees), or claims for injury or damages arising out of the performance of this Subcontract but only in proportion to and to the extent such liability, loss, expense, attorneys' fees or claims for injury or damages are caused by or result from the negligent or intentional acts or omissions of The Regents, its officers, agents or employees.

IF INSURANCE REQUIREMENT IS WAIVED, USE THIS ARTICLE:

21. INSURANCE

The Subcontractor, at its sole cost and expense, shall insure its activities in connection with this Subcontract and obtain, keep in force and maintain insurance as follows:

- A. Comprehensive or Commercial Form General Liability Insurance requirement: if Subcontractor already has professional liability insurance in place, UCOP will accept the existing coverage limits. If Subcontractor does not have professional liability insurance coverage, UCOP will waive the requirement for this project only.
- B. Business Automobile Liability Insurance for owned, scheduled, non-owned, or hired automobiles with a per person limit of not less than \$100,000 and a total limit per accident of not less than \$300,000, when using automobiles in conducting research under this Subcontract.

IF INSURANCE REQUIREMENT IS NOT WAIVED, USE THIS ARTICLE:

21. INSURANCE

The Subcontractor, at its sole cost and expense, shall insure its activities in connection with this Subcontract and obtain, keep in force and maintain insurance as follows:

- A. Commercial Form General Liability Insurance (contractual liability included) with limits as follows:

- 1) Each Occurrence: \$1,000,000
- 2) Products/Completed Operations Aggregate: \$1,000,000
(this requirement is ☐ applicable ☐ not applicable under this Subcontract)
- 3) Personal and Advertising Injury: \$1,000,000
- 4) General Aggregate: \$3,000,000

If the above insurance is written on a claims-made form, it shall continue for three (3) years following termination of this Subcontract. The insurance shall have a retroactive date of placement prior to or coinciding with the effective date of this Subcontract.

- B. Business Automobile Liability Insurance for owned, scheduled, non-owned, or hired automobiles with a combined single limit no less than one million dollars (\$1,000,000) per occurrence if using automobiles in conducting research under this Subcontract.
- C. Workers' Compensation as required under California State law.
- D. Professional Medical and Hospital Liability Insurance (contractual liability included) with limits of two million dollars (\$2,000,000) per occurrence and five million dollars (\$5,000,000) general aggregate.

If the above insurance is written on a claims-made form, it shall continue for three (3) years following termination of this Subcontract. The insurance shall have a retroactive date of placement prior to or coinciding with the effective date of this Subcontract.

Note: Professional Medical and Hospital Liability Insurance is required only when health care professionals and/or health care students are involved in patient care under this Subcontract.

- E. Commercial Blanket Bond with a limit no less than the amount of grant funds provided by this Subcontract in Subcontractor's possession at any one time covering all employees of Subcontractor, including coverage to protect money and securities as found in a Comprehensive Crime Policy.
- F. Such other insurance in such amounts which from time to time may be reasonably required by the mutual consent of The Regents and the Subcontractor against other insurable risks relating to performance of the Subcontract.
- G. The coverages required under this paragraph shall not in any way limit the liability of the Subcontractor.
- H. The coverages referred to under Subparagraphs A and B shall be endorsed to include The Regents as an additional insured. Such a provision, however, shall apply only in proportion to and to the extent of the negligent acts or omissions of Subcontractor, its officers, employees, and agents. A thirty (30)-day advance written notice (10 days for non-payment of premium) to The Regents of any modification, change or cancellation of any of the above insurance coverages is required.

22. AFFIRMATIVE ACTION/NON-DISCRIMINATION

Subcontractor agrees that when applicable, the following are incorporated herein as though set forth in full: the non-discrimination and affirmative action clauses contained in Executive Order 11246,

as amended, relative to equal employment opportunity for all persons without regard to race, color, religion, sex or national origin, and the implementing rules and regulations contained in Title 41, part 60 of the Code of Federal Regulations, as amended; the non-discrimination and affirmative action clause contained in Section 503 of the Rehabilitation Act of 1973, as amended, relative to the employment and advancement in employment of qualified individual(s) with a disability without discrimination, and the implementing rules and regulations in Title 41, part 60-741 of the Code of Federal Regulations; the non-discrimination and affirmative action clause of the Vietnam Era Veterans Readjustment Assistance Act of 1974 relative to the employment and advancement in employment of qualified special disabled veterans, recently separated veterans, Vietnam era veterans, and veterans who served on active duty during a war or in a campaign or expedition for which a campaign badge has been authorized, without discrimination, and the implementing rules and regulations in Title 41, part 60-250 of the Code of Federal Regulations; and the non-discrimination clause required by California Government Code Section 12990 relative to equal employment opportunity for all persons without regard to race, religious creed, color, national origin, ancestry, physical or mental disability, medical condition (cancer-related or genetic characteristics), marital status, sex, age, or sexual orientation, and the implementing rules and regulations of Title 2, Division 4, Chapter 5 of the California Code of Regulations.

23. USE OF NAME

Neither the Subcontractor nor the Regents will use the name of the other, either expressly or by implication, in any publicity or advertisement, except for purposes of support acknowledgement, without the express written approval of the other party to this Subcontract.

THE REGENTS of the UNIVERSITY of
CALIFORNIA, OFFICE OF THE PRESIDENT

SUBCONTRACTOR

By:

Carl Blumstein

Director, California Institute for Energy &
Environment

Date:

EXHIBIT A
SAMPLE WORK STATEMENT
WORK AUTHORIZATION MR-00X

GLOSSARY

Specific terms and acronyms used throughout this work statement are defined as follows:

<i>Acronym</i>	<i>Definition</i>
	(Insert additional rows as needed.)

Problem Statement

Describe the problem that this research will address.

GOALS AND OBJECTIVES

The goal of this project is to...(Complete the sentence with a brief description of the goal(s). Goals can be technical, economic or social. Please be brief, two to three sentences maximum.)

This project meets the PIER Goal of <pick one from the list below> by <fill in the blank>. (If applicable, this project also meets the secondary goal of <pick one from the list below> by <fill in the blank>.)

PIER Goals

1. Improving the Energy Cost/Value of California's Electricity
2. Improving the Environmental and Public Health Costs/Risk of California's Electricity
3. Improving the Reliability/Quality of California's Electricity
4. Improving the Safety of California's Electricity

The objectives of this project are to...(Complete this sentence with the objectives, which are things that will be measurable or knowable at the end of **this** project.)

Examples of Performance Measures:

- . . .reduce the cost of electricity generation (or supply) by ____%.
- . . .increase the number of new technologies that are market-ready by ____<fill in the number>.
- . . . increase the adoption by the market of specific technologies by ____%.
- . . . increase the renewable technologies that are cost competitive by ____%.
- . . . increase the new energy systems that can use multiple fuels by ____%.
- . . . decrease end-use consumption in specific energy sectors.
- . . . decrease the system impacts over current best practices by ____%.
- . . .increase the number of market-ready technologies that contribute to reduced risks of increased environmental/health impacts by ____<fill in the number>.

- . . .reduce the interruption frequency and duration per customer type per year by ____<fill in the number>.
- . . .increase the expected number of new technologies providing increased reliability/quality choices to consumers by ____<fill in the number>.
- . . .decrease the rates of injury and fatality associated with electricity generation/supply and usage by ____<fill in the number>.
- . . .determine the effectiveness of the XYZ process.

ADMINISTRATION

MEETINGS

- Task 1.1 Attend Kick off Meeting
- Task 1.2 Critical Project Review Meetings **(Not Req'd for Exploratory Grants)**
- Task 1.3 Final Meeting
- Task 1.4 Progress Reports
- Task 1.5 Test Plans, Technical Reports and Interim Deliverables
- Task 1.6 Final Report
- Task 1.6.1 Final Report Outline
- Task 1.6.2 Final Report

PERMITS AND ELECTRONIC FILE FORMAT

- Task 1.7 Identify and Obtain Required Permits
- Task 1.8 Electronic File Format

Refer to Attachment A-1 for the details of Administration

TASK 2.0 TECHNICAL TASKS

The project's work scope involves the following technical tasks:

- Task 2.1 *(Insert Task Name)*
- Task 2.2 – 2.n-2 *(Insert Task Name)*
- Task 2.n-1 Technology Transfer Activities *(If applicable)*
- Task 2.n Production Readiness Plan *(If applicable)*

Technical Task Descriptions

The work effort should be divided into a series of logical, discrete and sequential tasks. Technical tasks start with the number **2.1**. Please use the following pattern for each technical task.

Task 2.1 *(Insert Task Name)*

The goal of this task is to . . . *(Complete the sentence by inserting a **brief** description that identifies the expected result(s) and accomplishments for this task. The description should be 2 to 3 sentences maximum. Use a consistent naming convention throughout the work statement. For example, the name “photovoltaic system” is not the same as the name “solar electric generation alternative.” Pick one name and stick with it throughout.)*

Successful completion of this task will be measured by...*(Complete the sentence by listing the performance measure(s) or other criteria that will be used to evaluate the results and to determine to what degree the goal was achieved.)*

Meeting this goal helps to achieve the project objectives by... *(Complete the sentence.)*

The Performing Institution shall:

- *(Insert verb in active tense) . . . (Complete the sentence.)*
- *(Insert verb in active tense) . . . (Complete the sentence.)*

*(List each individual **activity** with a separate bullet and begin each bullet with a verb to continue the sentence beginning with "The Performing Institution shall." Organize activities in the order in which they will occur. A bullet needs to appear before each activity. Use this section to describe the essential elements of **the process** you will use to complete the project..*

*The contents of each **deliverable** shall also be described in this section. Only the **names** of each deliverable shall appear in the "Deliverables" section. Use exactly the same name to identify a deliverable (report, data set, project plan, etc.) in the activity and in the list of deliverables. A bullet needs to appear before each deliverable.*

Deliverables are products that incorporate the knowledge and understanding gained by performing the activities and that are submitted to the Commission for review, comment and approval. Deliverables include, but are not limited to, written reports that describe methods, test plans, results of testing, analysis of data, conclusions, and recommendations for future study, workshop agendas and summaries, description and photographs of equipment/product developed, summaries of advisory group meetings, computer software with written instructions for data input and use of the software, if intended for public or Commission use, and production prototypes. The sum of the deliverables should be sufficiently detailed to be of use to stakeholders and other researchers. The level of detail should be sufficient for an observer to assess whether the project objectives and goals have been successfully met.

Deliverables:

- 1st deliverable (name only)
- 2nd deliverable (name only)

(List deliverables using the same name and in the order that they appear in "The Performing Institution shall" section. Only the deliverable name should be listed here. The contents of each deliverable shall be described in "The Performing Institution shall" section.)

Key Personnel:

<fill in the name(s)>

(Name of key person for this task that works for the Performing Institution. If none, state none.)

Key Subcontractors:

<fill in the name(s) and/or company(ies)>

(Name of key company or name of key person at key company for this task. If none, state none.)

Task 2.2 – 2.n-2

(Repeat the process as shown above)

Task 2.n-1 Technology Transfer Activities *(Technology Transfer activities for the Exploratory Grant program will be in the form of Progress Reports and Final Report).*

The goal of this task is to develop a plan to make the knowledge gained, experimental results and lessons learned available to decision-makers in industry and government.

If this task is applicable, the Performing Institution shall:

- Prepare a Technology Transfer Plan. The plan shall explain how the knowledge gained in this project will be made available to the public. The level of detail expected is least for research-related projects and highest for demonstration projects. Key elements from this report shall be included in the Final Report for this project.
- Submit the draft Technology Transfer Plan to the Commission Project Manager for review and comment. Once agreement on the draft plan has been reached, the final plan shall be submitted to the Commission Project Manager for written approval, which shall be provided within 5 working days of receipt.
- Conduct technology transfer activities in accordance with the Technology Transfer Plan. These activities shall be reported in the Monthly Progress Reports.

Deliverables:

- Draft Technology Transfer Plan
- Final Technology Transfer Plan

Key Personnel:

<fill in the name(s)>

(Name of key person for this task that works for the Performing Institution. If none, state none.)

Key Subcontractors:

<fill in the name(s) and/or company(ies)>

(Name of key company or name of key person at key company for this task. If none, state none.)

Task 2.n Production Readiness Plan *(If applicable)* **(Not Req'd for Exploratory Grants)**

The goal of the plan is to determine the steps that will lead to the mass manufacturing of the technologies developed in this project.

If this task is applicable, the Performing Institution shall:

- Prepare a Production Readiness Plan. The degree of detail in the Production Readiness Plan discussion should be proportional to the complexity of producing the proposed product and its state of development. The plan shall include as appropriate but not be limited to:
 - Identification of critical production processes, equipment, facilities, personnel resources, and support systems that will be needed to produce a commercially viable product;
 - Internal manufacturing facilities, as well as supplier technologies, capacity constraints imposed by the design under consideration, identification of design critical elements and the use of hazardous or non-recyclable materials. The product manufacturing effort may include “proof of production processes”;
 - A projected “should cost” for the product when in production;
 - The expected investment threshold to launch the commercial product;
 - An implementation plan to ramp up to full production.
- Submit the draft Production Readiness Plan to the Commission Project Manager for review and comment. Once agreement on the draft plan has been reached the final plan shall be submitted to the

Commission Project Manager for written approval, which shall be provided within 5 working days of receipt.

Deliverables:

- Draft Production Readiness Plan
- Final Production Readiness Plan

Key Personnel:

<fill in the name(s)>

(Name of key person for this task that works for the Performing Institution. If none, state none.)

Key Subcontractors:

<fill in the name(s) and/or company(ies)>

(Name of key company or name of key person at key company for this task. If none, state none.)

ADMINISTRATION

MEETINGS

Task 1.1 Attend Kick-off Meeting

The goal of this task is to establish the lines of communication and procedures for implementing this Agreement.

The Principal Investigator shall:

- Attend a “kick off” meeting with the Commission Project Manager. This meeting may be by phone or in person as appropriate and as time permits. When necessary, the Commission Project Manager may request others to participate in the meeting including the Commission Contract Manager, and a representative from the Performing Institution’s Contracts and Grants Office. The technical and administrative aspects of this Agreement will be discussed at the meeting. Prior to the kick-off meeting, the Commission Project Manager will provide an agenda to all potential meeting participants.

The administrative portion of the meeting shall include, but not be limited to, the following:

- Roles and responsibilities of both parties
- Budget changes
- Invoicing
- Prior approvals for travel and equipment
- Confidential deliverables
- Intellectual property
- Critical Project Reviews (Task 1.2) (N/A for Exploratory Grants)
- Permit documentation (Task 1.7)
- Electronic File Format (Task 1.8)
- Establish the PAC (Task 1.10) (optional) (N/A for Exploratory Grants)
- PAC Meetings (Task 1.11) (optional) (N/A for Exploratory Grants)

The technical portion of the meeting shall include, but not be limited to, the following:

- The Commission Project Manager’s expectations for accomplishing tasks described in the Scope of Work;
- An updated Schedule of Deliverables
- An updated Gantt chart if applicable
- Progress Reports (Task 1.4)
- Technical Deliverables (Task 1.5)
- Final Report (Task 1.6)

The Commission Project Manager shall designate the date and location of this meeting.

Deliverables:

- An Updated Schedule of Deliverables
- An Updated Gantt Chart
- An Updated List of Permits
- [Schedule for Recruiting PAC Members \(optional\)](#)

Task 1.2 Critical Project Review Meetings

The goal of this task is to determine if the project should continue to receive Commission funding to complete this Agreement and if it should, are there any modifications that need to be made to the tasks, deliverables, schedule or budget.

Critical Project Reviews provide the opportunity for frank discussions between the Commission and the Performing Institution. CPRs generally take place at key, predetermined points in the Agreement, as determined by the Commission Project Manager and as shown in the Technical Task List above and in the Schedule of Deliverables. However, the Commission Project Manager may schedule additional Critical Project Reviews as necessary, and, if necessary, the budget will be reallocated to cover the additional costs borne by the Performing Institution.

Participants include the Commission Project Manager and the Performing Institution, and may include the Commission Contract Manager, the Commission Contract Officer, the PIER Program Team Lead, other Commission staff and Management as well as other individuals selected by the Commission Project Manager to provide support to the Commission.

The Commission Project Manager shall:

- Determine the location, date and time of each Critical Project Review meeting with the Performing Institution. These meetings generally take place at the Energy Commission, but they may take place at another location.
- Send the Performing Institution the agenda and a list of expected participants in advance of each Critical Project Review. If applicable, the agenda shall include a discussion on both match funding and permits.
- Conduct and make a record of each Critical Project Review meeting. One of the outcomes of this meeting will be a schedule for providing the written determination described below.
- Determine whether to continue the project, and if continuing, whether or not to modify the tasks, schedule, deliverables and budget for the remainder of the Agreement, including not proceeding with one or more tasks. If the Commission Project Manager concludes that the project needs a formal amendment or that satisfactory progress is not being made and the project needs to be ended, these conclusions will be referred to the Commission's Research, Development and Demonstration Policy Committee for its concurrence.
- Provide the Performing Institution with a written determination in accordance with the schedule. The written response may include a requirement for the Performing Institution to revise one or more deliverables that were included in the Critical Project Review.

The Performing Institution shall:

- Prepare a Critical Project Review Memorandum for each Critical Project Review that discusses the progress of the Agreement toward achieving its goals and objectives. This memorandum shall be submitted along with any other deliverables identified in this Scope of Work. Submit these documents to the Commission Project Manager and any other designated reviewers at least 10 working days in advance of each Critical Project Review meeting.
- Present the required information at each Critical Project Review meeting and participate in a discussion about the Agreement.

Performing Institution Deliverables:

- Critical Project Review Memorandum(Memoranda)
- Critical Project Review deliverables identified in this Scope of Work

Commission Project Manager Deliverables:

- Agenda and a List of Expected Participants
- Schedule for Written Determination
- Written Determination

Task 1.3 Final Meeting

The goal of this task is to close out this Agreement.

The Principal Investigator shall:

- Meet with the Commission to present the findings, conclusions, and recommendations. The final meeting must be completed during the closeout of this Agreement.

This meeting will be attended by, at a minimum, the Performing Institution, the Commission Contracts Officer, and the Commission Project Manager. The technical and administrative aspects of Agreement closeout will be discussed at the meeting, which may be two separate meetings at the discretion of the Commission Project Manager.

The technical portion of the meeting shall present findings, conclusions, and recommended next steps (if any) for the Agreement. The Commission Project Manager will determine the appropriate meeting participants.

The administrative portion of the meeting shall be a discussion with the Commission Project Manager and the Contracts Officer about the following Agreement closeout items:

- Commission's request for specific "generated" data (not already provided in Agreement deliverables)
- Need to document Performing Institution's disclosure of "subject inventions" developed under the Agreement

- “Surviving” Agreement provisions, such as repayment provisions and confidential deliverables.
 - Final invoicing and release of retention
- Prepare a schedule for completing the closeout activities for this Agreement.

Deliverables:

- Written documentation of meeting agreements and all pertinent information
- Schedule for completing closeout activities

REPORTING

Task 1.4 Progress Reports

The goal of this task is to periodically verify that satisfactory and continued progress is made towards achieving the research objectives of this Agreement.

The Performing Institution shall:

- Prepare progress reports which summarize all Agreement activities conducted by the Performing Institution for the reporting period, including an assessment of the ability to complete the Agreement within the current budget and any anticipated cost overruns. Each progress report is due to the Commission Project Manager within 5 working days after the end of the reporting period. Attachment A-1, Progress Report Format, provides the recommended specifications.

Deliverables:

- Quarterly Progress Reports

Task 1.5 Test Plans, Technical Reports and Interim Deliverables

The goal of this task is to set forth the general requirements for submitting test plans, technical reports and other interim deliverables. Unless described differently in the Technical Tasks,

The Performing Institution shall:

- Submit a draft of each deliverable listed in the Technical Tasks to the Commission Project Manager for review and comment in accordance with the approved Schedule of Deliverables. The Commission Project Manager will provide written comments back to the Performing Institution on the draft deliverable within 5 working days of receipt. Once agreement has been reached on the draft, the Performing Institution shall submit the final deliverable to the Commission Project Manager. The Commission Project Manager shall provide written approval of the final deliverable within 2 working days of receipt. Key elements from this deliverable shall be included in the Final Report for this project.
- Submit two copies of the final deliverable with the next invoice.

Task 1.6 Final Report

The goal of this task is to prepare a comprehensive written Final Report that describes the original purpose, approach, results and conclusions of the work done under this Agreement. The Commission Project Manager will review and approve the Final Report. The Final Report must be completed on or before the termination date of the Agreement. Attachment A-2, Final Report Format, provides the recommended specifications.

The Final Report shall be a public document. If the Performing Institution has obtained confidential status from the Commission and will be preparing a confidential version of the Final Report as well, the Performing Institution shall perform the following subtasks for both the public and confidential versions of the Final report.

Task 1.6.1 Final Report Outline

The Performing Institution shall:

- Prepare a draft outline of the Final Report.
- Submit the draft outline of Final Report to the Commission Project Manager for review and approval. The Commission Project Manager will provide written comments back to the Performing Institution on the draft outline within 5 working days of receipt. Once agreement has been reached on the draft, the Performing Institution shall submit the final outline to the Commission Project Manager. The Commission Project Manager shall provide written approval of the final outline within 2 working days of receipt.
- Submit two copies of the final report outline with the next invoice.

Deliverables:

- Draft Outline of the Final Report
- Final Outline of the Final Report

Task 1.6.2 Final Report

The Performing Institution shall:

- Prepare the draft Final Report for this Agreement in accordance with the approved outline.
- Submit the draft Final Report to the Commission Project Manager for review and comment. The Commission Project Manager will provide written comments within 10 working days of receipt.

Once agreement on the draft Final Report has been reached, the Commission Project Manager shall forward the electronic version of this report to the PIER Technology Transfer Group for final editing. Once final editing is completed, the Commission Project Manager shall provide written approval to the Performing Institution within 2 working days.

- Submit one bound copy of the Final Report with the final invoice.

Deliverables:

- Draft Final Report
- Final Report

PERMITS AND ELECTRONIC FILE FORMAT**Task 1.7 Identify and Obtain Required Permits**

The goal of this task is to obtain all permits required for work completed under this Agreement in advance of the date they are needed to keep the Agreement schedule on track.

Permit costs and the expenses associated with obtaining permits are reimbursable under this Agreement. Permits must be identified in writing before the Performing Institution can incur any costs related to the use of the permit(s) for which the Performing Institution will request reimbursement.

The Performing Institution shall:

- Prepare a letter documenting the permits required to conduct this Agreement and submit it to the Commission Project Manager at least 2 working days prior to the kick-off meeting:
 1. If there are no permits required at the start of this Agreement, then state such in the letter.
 2. If it is known at the beginning of the Agreement that permits will be required during the course of the Agreement, provide in the letter:
 - A list of the permits that identifies the:
 - Type of permit
 - Name, address and telephone number of the permitting jurisdictions or lead agencies
 - Schedule the Performing Institution will follow in applying for and obtaining these permits
- The list of permits and the schedule for obtaining them will be discussed at the kick-off meeting, and a timetable for submitting the updated list, schedule and the copies of the permit(s) will be developed. The implications to the Agreement if the permits are not obtained in a timely fashion or are denied will also be discussed. If applicable, permits will be included as a line item in the progress reports and will be a topic at Critical Project Review meetings.
- If during the course of the Agreement additional permits become necessary, then provide the appropriate information on each permit and an updated schedule to the Commission Project Manager.
- As permits are obtained, send a copy of each approved permit to the Commission Project Manager.

- If during the course of the Agreement permits are not obtained on time or are denied, notify the Commission Project Manager within 5 working days. Either of these events may trigger an additional Critical Project Review.

Deliverables:

- A Letter Documenting the Permits
- Updated List of Permits as They Change During the Term of the Agreement
- Updated Schedule for Acquiring Permits as It Changes During the Term of the Agreement
- A Copy of Each Approved Permit

Task 1.8 Electronic File Format

The goal of this task is to unify the formats of electronic data and documents provided to the Commission as contract deliverables. Another goal is to establish the computer platforms, operating systems and software that will be required to review and approve all software deliverables.

The Performing Institution shall:

- Deliver documents to the Commission Project Manager in the following formats:
- Data sets shall be in Microsoft (MS) Access or MS Excel file format.
- PC-based text documents shall be in MS Word file format.
- Documents intended for public distribution shall be in PDF file format, with the native file format provided as well.
- Project management documents shall be in MS Project file format.
- Request exemptions to software standardization in writing at least 90 days before the deliverable is submitted.

Deliverables:

- A Letter Requesting Exemption from Software Standardization (if applicable)

PROJECT ADVISORY COMMITTEE (Optional)

Task 1.9 Establish the Project Advisory Committee

The goal of this task is to create an advisory committee for this Agreement.

The PAC should be composed of diverse professionals. The number can vary depending on potential interest and time availability. The Contractor's Project Director and the Commission Contract Manager shall act as co-chairs of the PAC. The exact composition of the PAC may change as the need warrants. PAC members serve at the discretion of the Commission Contract Manager.

The PAC may be composed of qualified professionals spanning the following types of disciplines:

- Researchers knowledgeable about the project subject matter
- Members of the trades who will apply the results of the project (e.g. designers, engineers, architects, contractors, and trade representatives)

- Public Interest Market Transformation Implementers
- Product Developers relevant to project subject matter
- DOE Research Manager
- Public Interest Environmental Groups
- Utility Representatives
- Members of the relevant technical society committees

The purpose of the PAC is to:

- Provide guidance in research direction. The guidance may include scope of research; research methodologies; timing; coordination with other research. The guidance may be based on:
 - technical area expertise
 - knowledge of market applications
 - linkages between the contract work and other past, present or future research (both public and private sector) they are aware of in a particular area
- Review deliverables. Provide specific suggestions and recommendations for needed adjustments, refinements, or enhancement of the deliverables.
- Evaluate tangible benefits to California of this research and provide recommendations, as needed, to enhance tangible benefits.
- Provide recommendations regarding information dissemination, market pathways or commercialization strategies relevant to the research products.

The Performing Institution shall:

- Prepare a draft list of potential PAC members that includes name, company, physical and electronic address, and phone number and submit it to the Commission Contract Manager at least 2 working days prior to the kick off meeting. This list will be discussed at the Kick-off Meeting and a schedule for recruiting members and holding the first PAC meeting will be developed.
- Recruit PAC members and ensure that each individual understands the member obligations described below, as well as the meeting schedule outlined in Task 1.11.
- Prepare the final list of PAC members.
- Submit letters of acceptance or other comparable documentation of commitment for each PAC member.

Deliverables:

- Draft List of PAC Members
- Final List of PAC Members
- Letters of Acceptance, or Other Comparable Documentation of Commitment for Each PAC Member

Task 1.10 Conduct Project Advisory Committee Meetings

The goal of this task is for the PAC to provide strategic guidance to this project by participating in regular meetings or teleconferences.

The Performing Institution shall:

- Discuss the PAC meeting schedule at the kick-off meeting. The number of face-to-face meetings and teleconferences and the location of PAC meetings shall be determined in consultation with the Commission Contract Manager. This draft schedule shall be presented to the PAC members during recruiting and finalized at the first PAC meeting.
- Organize and lead PAC meetings in accordance with the schedule. Changes to the schedule must be pre-approved in writing by the Commission Contract Manager.
- Prepare PAC meeting agenda(s) with back-up materials for agenda items.
- Prepare PAC meeting summaries, including recommended resolution of major PAC issues.

Deliverables:

- Draft PAC Meeting Schedule
- Final PAC Meeting Schedule
- PAC Meeting Agenda(s) with Back-up Materials for Agenda Items
- Written PAC Meeting Summaries, Including Recommended Resolution of Major PAC Issues

Content and Format of Progress Reports

PROGRESS REPORT for
Project Title,
500-02-004, WA# MR-0XX
Date, 2006

Contractor Project Manager:
Commission Project Manager:

What we planned to accomplish this period

[This is taken directly from the section on “What we expect to accomplish during the next period” from the last progress report]

What we actually accomplished this period

[Concise description of major activities and accomplishments.]

How we are doing compared to our plan

[Explain the differences, if any, between the planned and the actual accomplishments. Describe what needs to be done, if anything, to get back on track.]

Significant problems or changes

[Describe any significant technical, regulatory or fiscal problems. Request approval for significant changes in work scope, revised milestone due dates, changes in key personnel assigned to the project, changes in match funds, changes to permits, or reallocation of budget cost categories. If none, include the following statement: “Progress and expenditures will result in project being completed on time and within budget.”]

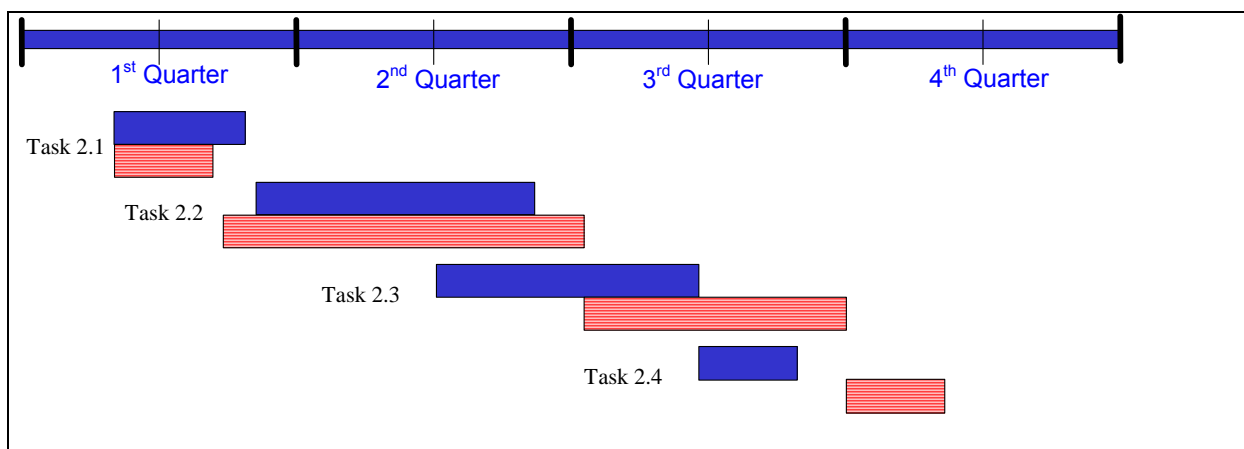
What we expect to accomplish during the next period

[Concise description of major activities and accomplishments expected, by task, deliverable or milestone as appropriate. This will be transferred to the next progress report]]

Status of Milestones and Deliverables:

[This should be the complete list as contained in the Scope of Work and the attached Schedule of Deliverables. Highlight differences between actual and planned.]

Description	Start Date		Due Date		Status (%)
	Planned	Actual	Planned	Actual	
Deliverable 1	DATE	DATE	DATE	DATE	Ontime 100%
Deliverable 2	DATE	DATE	DATE	DATE	Ahead 100%
Deliverable 3	DATE	DATE	DATE	DATE	Delayed 25%



Overall schedule for the _____ project.

[Planned is solid blue, actual is red striped. This work flow diagram needs to correlate with the schedule in Exhibit B. This example has been prepared as a Word Picture, but a comparable Excel diagram or Gantt chart is fine.]

Overview of Fiscal Status: (See invoices for detail.)

It is useful to track the rate of expenditure of project funds. The most useful way to do this is to compare the actual expenditure rate with the planned expenditure rate. You get the planned rate at the beginning of the project, so it becomes a baseline. If you change course at a critical project review, you should show the original and the modified baseline, and then track against the new one.

Photographs:

Include photographs where appropriate to document progress. The photos shall be shot with color print film or be very high quality digital photos (at least 300 dpi).]

Evidence of Progress:

If there is a long time between interim deliverables, then attach evidence of the progress being made (e.g., test data, product mock-ups, field site descriptions, preliminary analyses) to the Progress Reports to allow the Commission Contract Manager to review contract progress and gauge the quality of research results.

Notes:

The tracking for tasks and money is generally done at the major task level, but this depends on the project and fiscal controls.

Notice that there is no technical detail in these reports. This should come in specific deliverables so that critical project management information doesn't get lost. If the contractor is reporting monthly, but submitting invoices quarterly, then use the three monthly reports as an equivalent quarterly report. Don't make them write another report just to get paid.

The progress report on each project should be 1-2 pages long (plus photographs) and take about 1 hour to prepare for each reporting period.

Preparing Consultant Reports for the Public Interest Energy Research (PIER) Energy-Related Environmental Research Program

Process, Outline, Style Guide, and Additional Guidance

Contractor's Version

February 15, 2005

This document contains information on preparing the final report for your PIER Environmental Area project. Please check with Mark Wilson (markwilson@pacbell.net) to ensure that you have the most recent version of this document before drafting your report.

1. The PIER-EA Final Report Process

1. When a project is awarded, contractors will receive this document and the report document template (*format_tips_and_tools.doc*) by e-mail from the project manager or the technical editor, Mark Wilson. These materials should be used to create the report. If you have questions about these materials after reading the guidelines, please contact Mark at markwilson@pacbell.net.
2. Please use the Microsoft (MS) Office Suite 2002 for your final reports. The version currently in use at the Commission is "02" operating on Windows Office XP 02. Please let Mark know if significant portions of the report will be in other programs.
3. When the Contractor and the Commission Contract Manager have agreed that the writing of the Draft Final Report is complete, the Commission Contract Manager will forward the electronic report file(s) to Mark Wilson at markwilson@pacbell.net. The Contractor will receive an e-mail from Mark letting them know that the report is being edited, proofed, and formatted.
4. The technical editor will review the document and identify any issues that need further Contractor and/or Commission Contract Manager input. He will send an e-mail identifying these issues to both the Contractor and/or Commission Contract Manager, also identifying a time frame and process for resolving these issues. As information comes in from the Contractor and/or Commission Contract Manager, the editor will coordinate the changes to the document to ensure that all issues are resolved, and he will inform the Contractor and Commission Contract Manager of progress in this area.
5. The technical editor will contact Bob Aldrich for a publication number for the report. Bob will e-mail the publication number to the technical editor for inclusion into the report.
6. When the edits are complete, the technical editor will notify the Contractor and Commission Contract Manager that the report has been completed, and will e-mail a copy of the final report to them for final review. If the file size of the report is too large to e-mail, the technical editor will upload the file to an FTP site and provide directions to download the file.
7. If there are additional changes, those changes should be brought to Mark Wilson's attention directly with a "cc:" to all of the participants. Once the report is agreeable to all, the Commission Contract Manager will send written approval to the Contractor, who will submit 1 bound copy with their final invoice. At the same time, the Commission Contract Manager will notify Mark Wilson, who will send a final PDF version and MS Word version to Julie Talbert and to Bob Aldrich in the Commission's Media and Public Communications Office for posting on the Commission's publications Web site.
8. The camera-ready copy for the Energy Commission's publication needs will be prepared by Julie Talbert. About 20 copies will be made, with 1 copy going to the contract file, 1 copy going to the Energy Commission library, and copies going to California repository libraries and the Energy Commission's publications department. The hard copies will be produced by the Energy Commission's publications department.

2. Outline for PIER Final Reports

Sections

PIER Reports contain the following sections, in the following order:

- Cover Page and Title Page (required)
- Legal Notice (Energy Commission notice always included; others optional)
- Acknowledgement and Citation Page (Acknowledgement optional; citation required)
- Preface (required; use Energy Commission boilerplate)
- Table of Contents (required)
- Abstract (required)
- Executive Summary (required)
- Introduction* (required)
- Project Approach, or Methods* (required)
- Project Outcomes, or Results* (required)
- Conclusions and Recommendations* (required)
- References* (if applicable)
- Glossary (if more than 10 acronyms are used, this is required)*
- Appendices (if applicable)
- Attachments (if applicable)

*Please number these headings and subheadings in the following style : 1.0, 1.1, 1.1.1, and 1.1.1.1; 2.0, 2.1, 2.1.1, etc.

Titles for the middle sections (Introduction, Project Approach or Methods, Project Outcomes or Results, Conclusions, and Recommendations) may vary; however, the other section titles are mandatory. Each section must start on a new page.

To view examples of final PIER reports, see:

www.energy.ca.gov/pier (Energy Commission-hosted site)

Cover Page and Title Page (second page)

Please create one page containing the following information, which the Energy Commission will use to create a standardized Energy Commission cover page.

- Title of the Report
- Name of primary author(s) or principal investigator
- Author's company, organization, or affiliation
- Location of author's company, organization, or affiliation (City, State)
- Name of Energy Commission/PIER Project Manager
- PIER Program Area
- PIER Program Area Lead
- Contract Number and Name (and Work Authorization name and number or Project name and number, if applicable)
- Publication Number (leave blank: this information will be provided later by PIER)
- Publication Date (Month and Year)

Legal Notice

Please use the following Energy Commission notice:

Legal Notice

This report was prepared as a result of work sponsored by the California Energy Commission (Energy Commission). It does not necessarily represent the views of the Energy Commission, its employees, or the State of California. The Energy Commission, the State of California, its employees, contractors, and subcontractors make no warranty, express or implied, and assume no legal liability for the information in this report; nor does any party represent that the use of this information will not infringe upon privately owned rights. This report has not been approved or disapproved by the Energy Commission, nor has the Energy Commission passed upon the accuracy or adequacy of this information in this report.

If any other participating organization needs a legal notice on the document, please provide it.

Acknowledgements Page

This page acknowledges or expresses appreciation to those who participated in the project. It may be a paragraph or a bulleted list of names and, if appropriate, their affiliations.

Citation

At the bottom of the Acknowledgements page, include the citation for the report in the following style:

Please cite this report as follows:

Author last name, Author first name. Year of publication. *Report title*. California Energy Commission, PIER Energy-Related Environmental Research. Publication number.

(**Example:** BioResource Consultants. 2004. *Developing Methods to Reduce Bird Mortality in the Altamont Pass Wind Resource Area*. California Energy Commission, PIER Energy-Related Environmental Research. 500-04-052.)

Table of Contents

Sections to be included in the Table of Contents are as follows. As noted previously, titles for the Introduction, Project Approach or Methods, Project Outcomes or Results, Conclusions, and Recommendations sections may vary – the other titles are mandatory.

Preface (Space twice after the word “Preface” in the TOC to align the page number.)

Abstract

Executive Summary

1. Introduction

1.1 Background and Overview (Why this project was necessary)

1.2 Project Objectives (What you planned to accomplish)

1.3 Report Organization

2. Project Approach, or Method

3. Project Outcomes, or Results

4. Conclusions and Recommendations

4.1 Conclusions

4.2 Commercialization Potential (if applicable)

4.3 Recommendations (if applicable)

4.4 Benefits to California

5. References

6. Glossary (if used)

List of Figures

List of Tables

Appendices (if used)

Attachments (if used)

Preface

Use the following Preface verbatim. Fill in the contract name and number, organization, report title, and PIER Program area in the second-to-last paragraph.

Preface

The Public Interest Energy Research (PIER) Program supports public interest energy research and development that will help improve the quality of life in California by bringing environmentally safe, affordable, and reliable energy services and products to the marketplace.

The PIER Program, managed by the California Energy Commission (Energy Commission), annually awards up to \$62 million to conduct the most promising public interest energy research by partnering with Research, Development, and Demonstration (RD&D) organizations, including individuals, businesses, utilities, and public or private research institutions.

PIER funding efforts are focused on the following RD&D program areas:

- Buildings End-Use Energy Efficiency
- Energy-Related Environmental Research

- Energy Systems Integration
- Environmentally Preferred Advanced Generation
- Industrial/Agricultural/Water End-Use Energy Efficiency
- Renewable Energy Technologies

What follows is the final report for the **[Contract Name, Contract Number], [Work Authorization Name and Work Authorization Number or Project Name and Number, if more than one project is being conducted under a single contract]** conducted by the **[Company/Organization/Affiliation]**. The report is entitled **[Report Title]**. This project contributes to the **[PIER Program Area]** program.

For more information on the PIER Program, please visit the Energy Commission's Web site www.energy.ca.gov/pier or contact the Energy Commission at (916) 654-4628.

Abstract

The abstract is a concise (< 200 words), informative statement of the report's purpose, scope, methods, and major findings, including the report's results, conclusions, and recommendations – essentially a very brief Executive Summary. Abstracts are published by abstracting services to help readers determine whether or not the report is targeted to their area of interest; therefore, it should be understandable as a stand-alone document. The abstract should not contain undefined symbols, abbreviations, or acronyms, and should not refer to specific numbered elements of the main report. It should not refer to other research literature unless it is essential to do so to clarify the document's purpose. It should contain 5-10 keywords for computer searches and be geared toward a more technical audience.

Executive Summary

The Executive Summary is a final report in miniature, containing all the key information. It summarizes the report, and must use the following subheads:

- Introduction
- Purpose (outlining the broad purpose)
- Project Objectives (those that are measurable and knowable)
- Project Outcomes
- Conclusions
- Recommendations
- Benefits to California

The Executive Summary is intended to be short (preferred length is 2-3 pages). It can use a succinct, bulleted format to summarize the pertinent points under each of these sections, or can be more conversational (but still succinct). Assume a non-technical, management-level readership. If your report covers more than one project, repeat this organization for each project area. As a summary of the report, the Executive Summary should not present new information that is not found in the main document. See the Energy Commission Web site (www.energy.ca.gov/reports/index.html) or the PIER-EA Web site (www.energy.ca.gov/pier/environmental/energy_reports.html) for examples.

1. Introduction

Background and Overview - Provide relevant background; define (at an intelligent layperson's level) the problem being addressed by the project; identify the project's subject area and research goals. Refer to the contract for this information.

Project Objectives - Present the technical and economic objectives for your project. The objectives need to express how to measure or know whether or not the objectives have been achieved. This information should be taken from the contract and should reflect any changes made during the course of the project. (Describe *why* these changes were made in the Project Approach section.)

Each objective shall be separately identified, a useful form is:

Project objectives were to:

- Verify (an action verb followed by relevant text)....
- Determine....
- Measure...

Report Organization - Provides a roadmap to the rest of the report.

2. Project Approach, or Methods

This section discusses the tasks you undertook and what you did to accomplish your objectives. Discuss the testing procedures you undertook and any system modifications and improvements you made.

3. Project Outcomes, or Results

This section presents your results. Please organize them in the same order as the objectives. An easily readable style is to state a brief version of each Outcome in bulleted form and then follow each bullet with supporting paragraphs that describe each Outcome; although any well-organized presentation will be accepted.

There can be more Outcomes than there were Objectives, because there may be more than one Outcome per Objective, or you may have found an unanticipated Outcome during your research. However, you cannot have stranded objectives; all Objectives, whether met or not, must be discussed in this section. If this section is particularly long, then it may be useful to summarize the outcomes at the end of the section.

4. Conclusions and Recommendations

Conclusions - Conclusions must be drawn from evidence presented in the report, and there must be a conclusion for every objective presented earlier. Present your conclusions either in priority order or in the same order as the objectives presented earlier. You may have conclusions that are broader than individual Objectives and Outcomes. If so, please present these after you present the individual conclusions.

Commercialization Potential - If your project had a task to prepare a Production Readiness Plan or a similar effort related to assessing where the research is in relationship to being used in its relevant markets, please discuss that task in this section.

Recommendations - Specific recommendations should derive from the conclusions presented, and should be presented in the same priority order as those conclusions. Specific recommendations should include an estimate of the level of funding required for follow-on research; it is acceptable to provide an estimate in a low to high dollar amount range. Also, include an estimate of the time required to carry out the recommended next steps. (For example, would this be a multi-year study requiring three to five years or would this be a scoping study that would be feasible to complete in a year?). Please be succinct. General recommendations should follow. Please do not add specifics on time and cost of follow-on activities in the Executive Summary.

Benefits to California - This section may discuss two issues: (1) the benefits that California has already received from this contract (if applicable), and (2) how California will or could benefit from the results of this project. These benefits need to be related to the problems that this research was intended to address; however, discussion of ancillary benefits is also encouraged. Refer to the Introduction section of the report—the list of benefits in both sections should be identical.

5. References

The references must list all documents cited in the body of the report. List references in standard bibliographic format. Please check that all of the references contained in the body of the report are accurate and that the full citation for each reference is listed in the References section.

Any documents referred to in the Appendices should be listed in the reference section in the appropriate Appendix.

Glossary

If there are more than 10 acronyms used in the report, please provide a glossary with definitions for each acronym at the end of the report.

Appendices

Appendices are designated as follows: A-1, A-2, A-3, etc. For documents with a large download size, appendices are posted by the Commission as separate PDFs from the main document. All appendices must be either part of the main document or presented as separate PDF files.

Attachments

Attachments are discouraged, but if absolutely required, they are designated by Roman numerals.

General Information

The abbreviation “CEC” or simply “Commission” is not allowed in final reports. Use “California Energy Commission” at first mention, then use “Energy Commission” throughout the rest of report.

3. Formatting California Energy Commission Consultant Reports

Styles

Contractors should use the PIER report styles. These styles are carried in the *Format_tips and tools.doc*. They are as follows:

Style Name	Appearance
Bullet, b	Palatino, 11 pt. (bullet is indented 0.5" from the left)
Centered Titles, ct	Palatino, 14 pt., bold, centered
Centered TOC Titles, toc	Palatino, 14 pt., bold, centered
Figure title, ft (caption)	Arial, 11 pt., bold, centered
Heading 1,1	Arial, 11 pt., bold (1.0)*
Heading 2,2	Arial, 11 pt., bold (1.1)*
Heading 3,3	Arial, 11 pt., bold (1.1.1)*
Heading 4,4	Arial, 11 pt., bold (1.1.1.1)*
Normal	Palatino, 11pt.
Table title, tt (caption)	Arial, 11 pt., bold, centered

* Although these headings are the same font and point size, they are differentiated by increased indentation at every level.

Numbered headings must be used for all four levels.

The *Centered Titles* style is for centered title heads (such as Acknowledgements), that do not appear in the report's Table of Contents.

The *Format_tips and tools.doc* document can be turned into a template and "attached" to the report, so that the specific styles are available in Word. To do so:

1. Open *Format_tips and tools.doc* and save it as a template (.dot) document.
2. Open the report document, click on "Tools," then "Templates & Add-ins."
3. Select "Attach," and select and open *Format_tips and tools.dot*. This will add the styles to the report document.

Pagination

Pagination must begin on the Acknowledgement/Citation page (as i, ii, iii...) and continue in lower case Roman numerals through the Preface. On the first page of the Executive Summary, begin numbering "1" and continue sequential numbering throughout the document. Use Palatino, 10 pt. for page numbers.

Table of Contents

The table of contents is generated automatically, based on the style headings assigned to each section. For the "Preface" line, 2 spaces must be manually entered directly after the word "Preface," so that the page number falls in the correct place. Table of contents should be updated after each series of edits, and as the last task before creating the PDF.

Figures and Tables

Figures and Tables can use any style that presents the information clearly and is readable.

Figure and table captions need to be formatted as a "caption" style, then highlighted and reformatted as either a Figure (Figure Title, ft) or a Table (Table Title, ft), so that they can generate automatic Lists of Figures and Lists of Tables in the Table of Contents and be cross-referenced.

Appendices

Appendices can use whatever format and style the contractor deems appropriate. They often are not edited or reformatted by the Energy Commission, so please ensure that the material is accurate and presented clearly.

If the main document and appendices together result in a large file size (i.e., a lengthy download) , the Appendices are posted on the Energy Commission Web site as separate PDF documents, and a hyperlink from the main document's table of contents links to them when placed online. When the appendices are separate documents, they do not necessarily use a cover page and are not necessarily identified as an appendix on the appendix document itself.

If the Appendices are presented as separate PDFs, a "slipsheet" for each appendix must be inserted on its own page at the end of the main report. These pages should be formatted as follows:

Appendix I (centered, and assigned a "Centered Titles, ct" style)

Title of appendix (centered, and assigned a "Centered Titles, ct" style)

Each subsequent appendix should be formatted similarly, and each must have its own page.

Attachments

Follow the same guidelines as those for Appendices.

Footnotes/Endnotes

Endnotes are not permitted. Footnotes should be used sparingly to briefly clarify terms or concepts that may not be understood by the average reader. Footnotes are placed at the bottom of the page on which they appear. Do not place footnotes at the end of each section.

In-text Citation

PIER Consultant Reports use the Author/Date system of citation in the text, as follows: (Author 2004). There is no comma between the author(s) names and the date. For multiple citations, please use the following style: (Brown 2004; Goodwin 2002; Aler et al. 2000; Kumesh 2004a, 2004b).

Style Formatting Guidelines

Applies to:	Style Name	Style Definition
All Text that is not assigned a special style (e.g., heading, bullet, caption)	Normal	PIER Standard is Palatino 11. If this is not available, please use Times New Roman throughout the document. Be consistent by using the NORMAL style throughout the document. Text is justified.
Appendices		PIER does not edit Appendices
Attachments		PIER does not edit Attachments
Bullets	Bullet, b	Bullets should be indented .5" from left. Use the • bullet. A bulleted list is followed by a carriage return.
Captions		<ul style="list-style-type: none"> All captions are in Sentence Case. Captions are brief to describe the figure or table with minimal, if any, use of punctuation. Captions do not introduce new information.
Equation Captions		Arial BOLD 11, Left above the Equation. Equations are numbered sequentially.
Figure Captions	Figure Title, ft	Arial BOLD 11, centered below the figure. Figures are labeled: Figure #. Title of figure
Table Captions	Table Title, tt	Arial BOLD 11, centered above the Table. Tables are labeled: Table #. Title of table
Equations		Equations to be noted are centered on a new line.

Applies to:	Style Name	Style Definition
Figures		<ul style="list-style-type: none"> Figures should be numbered sequentially, starting from the beginning of the document, not by section. (i.e., they should be numbered Figure 1, Figure 2, Figure 3; <u>not</u> Figure 1-1, Figure 1-2, Figure 2-1) Centered Format text wrapping above and below. Avoid the use of text boxes wherever possible and insert the figures directly into the document. Every figure presented must be referred to in the text.
Graph Figures		<ul style="list-style-type: none"> It is not necessary to title the Graph if the title will be used in the caption. Please label all axes. Use Sentence case. Include units
Tables		<ul style="list-style-type: none"> Tables should be numbered sequentially, starting from the beginning of the document, not by section. (i.e., they should be numbered Table 1, Table 2, Table 3; <u>not</u> Table 1-1, Table 1-2, Table 2-1) Centered Format text wrapping above and below. Avoid the use of text boxes wherever possible and insert the tables directly into the document. Every Table presented must be referred to in the text.

Applies to:	Style Name	Style Definition
Equations		<ul style="list-style-type: none"> Centered Format text wrapping above and below. Avoid the use of text boxes wherever possible and insert the equations directly into the document. Every equation presented must be referred to in the text.
Glossary		<ul style="list-style-type: none"> Please use table format with word or acronym on the left side and the definition on the right side. Both columns are left justified.
Headings (level 1)	Heading 1,1	<ul style="list-style-type: none"> PIER standard style is Arial BOLD 11. Headings are in Title case. Headings are outline numbered. There is no additional carriage return before the next paragraph or heading.
Pagination		<ul style="list-style-type: none"> Begin numbering “i” on the Acknowledgement/Citation page. On the first page of the Executive Summary, begin numbering “1”. Use Palatino, 10 pt.
References	Reference	.5” hanging indent.
Subheadings (level 2)	Heading 2,2	<ul style="list-style-type: none"> PIER standard style is Arial BOLD 11. Subheadings are in Title case. Subheadings are outline numbered. There is no additional carriage return before the next paragraph or heading.

Applies to:	Style Name	Style Definition
Subheadings (level 3)	Heading 3,3	<ul style="list-style-type: none"> PIER standard style is Arial BOLD 11. Subheadings are in Title case. Subheadings are outline numbered. There is no additional carriage return before the next paragraph or heading.
Subheadings (level 4)	Headings 4,4	<ul style="list-style-type: none"> PIER standard style is Arial BOLD 11. Subheadings are in Title case. Subheadings are outline numbered. There is no additional carriage return before the next paragraph or heading.
Table Headings		<ul style="list-style-type: none"> Column headings are centered Row headings are left justified Use Sentence case All headings are centered vertically.
Table Contents		<ul style="list-style-type: none"> Text is left justified. Numbers are either right justified or aligned by decimal. All text is centered vertically. Minimal (if any) use of punctuation.
<p>Centered Title Headings</p> <p>Centered Titles apply to Title Headings not a part of the body of the paper (i.e., Acknowledgements, Table of Contents, List of Figures, List of Tables.) These heads do not show in the Table of Contents.</p>	Centered Titles, ct	<ul style="list-style-type: none"> Palatino, 14 pt. bold, centered
<p>Centered TOC Titles</p> <p>Centered TOC Titles will show in the Table of Contents</p>	Centered TOC Titles, TOC	<ul style="list-style-type: none"> Palatino, 14 pt. bold, centered

4. Additional Guidance on Preparing Accurate, Consistent Reports

1. Put on the hat of an inquisitive, reasonably well-educated lay reader. Pretend that they just paid for this research project and want to understand how and why you spent their money.
2. Apply the test of completeness. Are all the pieces there? Are all the references clear and do those in the text match those in the reference section? Are the relationships between the partners and the players clearly explained?
3. Apply the test of logic. Does the document flow and make sense? Is the need for the research clearly described? Is the technical approach clearly described? Do the conclusions make sense? Are they drawn from the analysis? Do the numbers check? Is it clear how the numbers were derived?
4. If the project did not do everything it intended to do, explain.
5. The Final Report must primarily address the Agreement scope of work. Doing this will help manage the scope and the effort required for this report. (A) Some research projects are Stage X (e.g., one stage of Stages and Gates) of a longer-term program and all work done during the time the Commission was involved was funded by all of the partners. (B) In other cases, the work being done in this Stage of the program had more tasks than the Commission participated in, although some of the results of this work may have affected, or been affected by the other tasks. The Commission-funded portion of the research project (or program) needs to be clearly differentiated from the overall program of which this portion of the research is a part. Comments about the program should not be intermingled with those about the project. If some objectives of the program will be performed elsewhere, or at another time, this needs to be explained, and the report should only focus on the project at hand.
6. There needs to be a clear relationship between project objectives and outcomes.
7. The methods used to conduct the research need to be explained.
8. Data that is presented in the report needs to be analyzed. If you present a picture, graph or table, be sure that you discuss it in the text, not just refer to it.
9. Each conclusion needs to be substantiated by the analysis contained in the report.
10. Figures and Tables must clearly relate to, and be consistent with the text, and vice versa. (If the text says the generator had a capacity of 30 kW, the table should not say it was 31.2 kW.)
11. Use consistent references to report performance specifications and results. For example, if a piece of equipment is to be referred to by its nominal nameplate rating, then use that reference consistently throughout the report. If however the desired number was the measured performance of the device, (almost always different from nameplate) then consistently use that measured number. Do not mix the two in the narrative.
12. The text needs to clearly refer to the attached appendices. It should also explain how the data in the appendices matters to the text. If it does not really matter, it probably should be dropped. (You may still need it because it is a deliverable according to the Agreement, so

check this carefully.) References to multi-page appendices need to be specific to the page or section of the appendix, not just a general reference to Appendix X.

PIER Environmental Area Project Summary Instructions

Introduction

Project summaries are an important element of the Environmental Exploratory Grant Program. It is a goal of the PIER Environmental Area (PIER-EA) staff that the California ratepayers, who fund these grants, understand clearly why their money is being spent on these projects and the benefits they (and the State) will receive. The audience for project summaries is the average Californian who wants to know (in relatively simple terms) why this work was conducted, its subsequent benefits, the basic project methodology, the results, and the researchers' conclusions. Wherever possible, benefits should be quantified.

Preparation Process

There are several steps in completing a project summary:

1. The PI presents an initial project summary and any graphs or figures (see Project Summary Process below for explanation) to the UC Administrator, based in part on the PI's original proposal to the Energy Commission.
2. The UC Administrator, PIER-EA staff and editor revise the project summary, add graphics, and post it on the PIER website, after obtaining approval from the PI.
3. After the PI has completed their final report, the PI edits the project summary to add the results and reflect any changes that may have occurred in the project.
4. The UC Administrator, PIER-EA staff and editor finalize the project summary and post it on the PIER website, after obtaining approval from the PI.

Project Summary Format

The example below outlines the format for the two-page project summary. If possible, provide graphs and/or figures that illustrate either the context for the research (e.g., a table that shows increased health risks from "pollutant X" as a reason for developing better mitigation protocols) or research results. If available, provide clear digital photographs of the research being conducted. However, please note that although such graphics are helpful to PIER-EA staff, you should not spend research money and time on developing them solely for this summary. Only provide them if readily available. If you cannot provide graphics, but can suggest where such graphics might be found, please do so, since graphics facilitate public understanding of the projects.

The EEGP Administrator will provide some examples of similar two-page project summaries from past projects. Note that some of the headings in the examples may differ from those in the template provided below—please follow the headings in the template. Also note that you need not match the level of detail in these write-ups (particularly the "Issue" and "Benefits" sections), as these two-page project summaries are not meant to be

effort-intensive on your end. However, if it is not difficult for you to provide helpful references, we would appreciate them very much, as we will be editing these write-ups before posting them on our website. If you provide references, we will need either electronic copies, the web link where references are available, and/or a hard copy for our files. The PIER-EA program must have copies of any references used in project summaries posted on the Web.

As mentioned, these project summaries are not intended to be effort-intensive on your part, nor do they require continuous attention throughout the 12-month grant period. This material is provided at the onset of the grant period so that you are able to prepare the draft initial project summary required when your project begins and are aware of what will be expected after the conclusion of your research. Throughout the project, you may come across background or contextual information (e.g., interesting statistics or facts) that may be useful in finalizing the project summary, and you can collect this material as you conduct the project and provide it with the revised project summary at the end of your project.

If you have questions, please contact Edward Vine, EEGP Administrator (Edward.Vine@ucop.edu or 510-486-6047).

Draft Outline for Project Summaries

Project Title: Short, descriptive title of the project, for the summary.

Contract #: To be provided by PIER-EA staff

Contractor: The name of the research organization, company, or institution.

Grant Amount: The grant amount.

Match Funding: Amount of additional funding and the source (organization, company, or institution). (If applicable)

Contractor Project Manager: The name of the project's PI.

Commission Project Manager: To be provided by PIER

Commission Contract Manager: To be provided by PIER

The Issue

In layperson's terms, summarize concisely why the research needed to be conducted and what research gap it addressed. Quantify the importance of the work whenever possible (e.g., "Research has found that 100,000 kWh of electricity could be saved each year by altering procedure X"). Please cite sources for any such quantifications.

Project Description

Describe the project in simple terms, but at a level of detail necessary to understand what the project entails. Include the name(s) of the research organization, company, or institution involved; location of research and/or field studies; project methodology; and activities conducted.

PIER Program Objectives and Anticipated Benefits for California

Describe how California will benefit from the research. If the research does not lead to a direct benefit for Californians, describe how it furthers research toward a benefit, and what the ultimate benefit will be to California and its citizens. Consider environmental, health, economic, and electricity efficiency and reliability benefits. Quantify benefits as much as possible (e.g., "The implementation of this new technique could reduce electricity use in California by X%").

Bullet each topic and present it as follows:

- **Providing environmentally sound electricity.** Water and energy managers and policy analysts in California will be able to use the completed methodology to...

Results

[Do not include this section in the initial draft, since there will be no results to report.] Report the project results when the project is completed. Include information such as data acquired or product or methodology developed. Interpret the results in the context of the project's goals. Describe possible next steps.

Final Report

Please use the following text: “PIER-EA staff intend to post the final report on the Energy Commission website in [please give quarter and year, e.g., summer 2006] and will list the website link here.”

Energy Commission Contact

This information will be added by PIER-EA.